

THE

17p. 246
2
Gentleman's Diary,

OR THE

MATHEMATICAL REPOSITORY:

AN ALMANACK

for the YEAR of our LORD 1746.

being the Second after BISSEXTILE,
or LEAP-YEAR.

Containing many useful and entertaining Particulars,
peculiarly adapted to the ingenious Gentlemen en-
gaged in the Study and Practice of the

MATHEMATICKS.

The Sixth *Almanack* ever publish'd of this Kind.

— Quâ causâ argentea Phœbe
lustribus haud æquis graditur; cur subdita nulli
hactenus Astronomo numerorum fræna recusat:
Cur remeant Nodi, curque Auges progrediuntur.

— Quantis refluxum vaga Cynthia pontum
viribus impellit; dum fractis fluctibus ulvam
referit, ac Nautis suspectas nudat arenas,
ternis vicibus suprema ad littora pulsans.

L O N D O N,

Printed for the Company of STATIONERS.

MDCCXLVI.

In the two last *Discourses* we gave our Readers a short Account of the Rise and Progress of ALGEBRA; and shall now proceed to the History of GEOMETRY, as deliver'd to us by our ingenious Friend Mr. Tho. Lediard.

IT is the Opinion of many (and not without some Reason) that *Geometry* had its first Rise in *Egypt*; where the annual overflowing of the River *Nile*, oblig'd Men to distinguish their Lands one from another, by diligently considering their Form, or Figure, so far, as to enable them to plot and lay them down again in their just Dimensions and Form: Hence Men being oblig'd (as it were) to contemplate upon the Nature of those several Figures, or Forms, that their Lands were laid down in, must very much contribute towards the Discovery of many useful and excellent Properties relating to *Geometry*. But if we may credit *Josephus*, of which Opinion was also *Pliny*, *Diodorus* and *Cicero*, the *Affyrians* and *Chaldeans* were the first after the Flood who applyed themselves to the Knowledge and Practice of *Mathematicks*. From the *Affyrians* and *Chaldeans*, they were transfer'd into *Egypt* by *Abraham*, who by the Command of God left his native Country and coming thither found the *Egyptians* to be of a remarkable Disposition for learning Mathematical Arts; he therefore communicated to them, *Arithmetick*, *Geometry*, and *Astronomy*. The *Egyptians* flourishing very much in these Sciences gave occasion to *Aristotle* to say, that the *Egyptian Priests* were the first *Inventors* of the *Mathematical Arts*, who by reason of their Employments had sufficient time upon their Hands, for making such Discoveries in those Arts. From hence these Sciences were carried to *Greece* by *Thales the Milesian*, he travelling into *Egypt*, was the first that brought *Geometry* from thence, amongst the *Grecian Philosophers*; he found out the 15 and 26 Proposition of the first Book of *Euclid* as also the 2, 3, 4 and 5 of the fourth Book. He began to observe the Equinoxes and Solstices, and first foretold an Eclipse of the Sun as also one of the Moon to King *Cyrus*, he is therefore well accounted, and ought to be look'd upon as the first Founder of the *Mathematicks* in *Greece*. He flourished 584 Years before *Christ*. (Vide *Stanley's Lives of the Philosophers*.)

Thales was succeeded by *Pythagoras* a *Philosopher* of *Samos*, who exceedingly improved and adorn'd the *Mathematicks*; he abstracted *Geometry* from Matter, and found out the 32^d, 47th and 48th Propositions of the first Book of *Euclid*, is especially celebrated for the Invention of the 32^d and 47th, for which (as *Apollodorus* says) he sacrificed a *Hecatomb* to the Gods: He first laid open the Doctrine of Incommensurables and the five regular Bodies. He was the first (that we know of) who open'd a School wherein Youth might learn these sublime Arts and Sciences. *Pythagoras* was succeeded by *Anaxagoras* of *Clazomenæ* and *Oenopides* of *Clios*, these were mentioned by *Plato*: and *Aristotle* affirms that *Anaxagoras* wrote a Treatise of *Geometry*, and *Proclus* ascribes the 12th and 23^d Proposition of the first Book of *Euclid* to *Oenopides*: After these came *Briſo*, *Antipho*, and *Hippocrates*, who are all celebrated by *Aristotle* for attempting the Quadrature of the Circle, but of these *Hippocrates* was by far the most famous; from a Merchant he became a *Philosopher* and *Geometrician*; he first attempted the doubling of the Cube by two mean proportionals, and (as *Proclus* witnesseth) was the first who wrote *Elements* and digested into order what Discoveries had been made both by himself and others. *Democritus* was admirable in *Philosophy*, *Mathematicks* and *Physicks*: but his Writings are all destroyed, (as some Authors think) by *Aristotle's* ambitious Desire of having no other Writings but his own read. *Plato* (who is reported to have been Scholar to *Theodorus Cyreneus*) added great Lustre to the *Mathematical Sciences*; he vastly enlarged *Geometry* with great and noble Additions, he was the first found out the Analytic Art, he illustrated and set off his Books of *Philosophy* in a *Mathematical* way, and enlarged whatsoever was admirable either in *Mathematicks* or *Philosophy*; over the Door of his Academy was this Inscription in Greek, *Let no one ignorant of Geometry enter here*. Out of *Plato's* Academy proceeded a Multitude of *Mathematicians*, hence were *Leodamus* the *Thracian* who practising the *Analysis* received from *Plato* found out many useful Things the help of it; *Theætetus* the *Athenian*, who is rendered famous as well by *Plato's* Encomiums (who inscribed a Dialogue with his Name) as by his own Inventions, 'twas he that wrote the *Elements* and the Inscription of the regular Bodies; *Archy-*

as also wrote *Elements*; and his doubling the *Cube* is mentioned by *Eutocius*, he has also the Honour of being the first who apply'd *Mathematicks* to use in Life; *Gellius* reports that by his Contrivance a wooden Pigeon was made to fly, being followed therein by *Dadalus* and others yielded Matter to the Poets for Fables. *Neoclides* is famous on account of his Scholar *Leon* who wrote *Elements* of the *Mathematicks*, improved them and made them still more fit for the uses in Life. *Endoxus* was not inferior to *Leon*, for to him we are indebted (as some Authors affirm) for the whole 5th Book of *Euclid*. He first framed the *Astronomical Hypotheses*, and followed by *Archytas* derived down the Springs of *Geometry* to *Mechanicks*. *Amyclas* the *Heracleot*, *Menechmus*, his Brother *Dionysius* and *Helicon* of *Cyzium*, all much improv'd and augmented *Geometry*; *Theudius* and *Hermotimus* render'd the *Elements* more perfect and full. *Xenocrates* the Master of *Aristotle* was a Man famous for the *Mathematicks*: A Person ignorant of *Geometry* being desirous to be his Auditor, he answered him thus, "Go thy way, for thou wantest the Handles of *Geometry*." These were all *Platonists*.

(To be continued in our next)

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ALL Persons who are pleas'd to be CONTRIBUTORS, by sending the QUESTIONS, ÆNIGMA'S, &c. to the EDITOR; or by sending new Questions, Ænigma's, Problems or other Subjects fitting for this WORK, are desired (for the sake of sending them, and their Solutions along with them, before the end of May 1746, directed for the Authors of the Gentleman's Diary, or left (it being more commodious for the Author) with Mr. JOSEPH HOW at the White Horse in Cripplegate, LONDON: But what they intend for the Supplement hereto, before Candlemas Day. (Post paid they will not be receiv'd.)

JAN 7

JANUARY hath xxxi Days.					M	Day	Sun's
					D	Breaks.	Decl.
1	W	1st Quarter 3 Day at 1 Afternoon	bow	10	N	30	3M 52
2	T	New Moon the 10 Day at 4 Morn.	reins	11		58	4 30
3	F	1st Quarter 18 Day at 7 at Night	loyn		Morn		5 30
4	S	New Moon 26 Day at 5 in the Morn.	seer.	1		30	6 18
5	T	2 Sunday after Christmas	blad.	2		57	7 7
6	M	3 Sunday after Christmas	hips	4		30	8 5
7	T	4 Sunday after Christmas	thig.	5		55	9 4
8	W	5 Sunday after Christmas	kne.	7		0	10 3
9	T	6 Sunday after Christmas	and	7		48	11 1
10	F	7 Sunday after Christmas	ham.		Sets		11 54
11	S	8 Sunday after Christmas	legs	5	N	0	0A 46
12	T	9 Sunday after Christmas	ank.	6		20	1 30
13	M	10 Sunday after Christmas	feet	7		37	2 15
14	T	11 Sunday after Christmas	toes	8		49	2 53
15	W	12 Sunday after Christmas	head	10		0	3 30
16	T	13 Sunday after Christmas	and	11		13	4 9
17	F	14 Sunday after Christmas	face		Morn.		4 51
18	S	15 Sunday after Christmas	neck	0		24	5 32
19	T	16 Sunday after Christmas	thro	1		38	6 17
20	M	17 Sunday after Christmas	arms	2		56	7 7
21	T	18 Sunday after Christmas	and	4		15	8 1
22	W	19 Sunday after Christmas	shou.	5		28	9 0
23	T	20 Sunday after Christmas	brea.	6		22	10 0
24	F	21 Sunday after Christmas	stom	7		4	10 55
25	S	22 Sunday after Christmas	hear.	7		33	11 52
26	T	23 Sunday after Christmas	back		Rises		Morn.
27	M	24 Sunday after Christmas	bow	6	M	33	0 47
28	T	25 Sunday after Christmas	belly	8		6	1 37
29	W	26 Sunday after Christmas	reins	9		37	2 27
30	T	27 Sunday after Christmas	oins	11		8	3 14
31	F	28 Sunday after Christmas	cer	12		40	4 8
A 3							
Sun Rises. Sun Sets. Saturn Rises. Jupiter Rises. Mars Sets. Venus Rises. Mercu. Rises. Watch too fast.							
6	8	13	59	11	N	14	4M 30
7	52	4	8	10		50	4 9
7	42	4	18	10		24	3 50
7	31	4	29	10		0	3 30
7	13	4	42	9		31	3 8

FEBRUARY hath xxviii Days.

Last Quarter 1 Day at 9 at Night
 New Moon 9 Day at 9 in the Morn.
 First Quarter 17 Day at 2 Afternoon
 Full Moon 24 Day at 4 Afternoon

M | W | S | Sundays, Holy Days, remarkable
 D. | D. | Days, Length, Inc. and Dec.
 of Days, Weather, &c.

1	S	Expect moderate Wea. now about	blad.	0	14	0
2	E	Sexagesima. Candlemas Day	hips	2	9	5
3	M	Craft. Purif. 3 Return	and	3	31	6
4	T	Days 9 hours 40 min. long	thig.	4	50	7
5	W	Days increas'd and Nights	knee	5	45	8
6	T	shortened 2 hours and a half	ham.	6	25	9
7	F	About this time expect some down	legs	6	4	0
8	S	fall, perhaps Sleets of Snow but	ankl	7	0	11
9	E	Quinquagesima, or Shrove Sun	feet	8	1	0
10	M	Stab. Purif. 4 Return	and	9	0	0
11	T	Shrove Tuesday	toes	7	43	
12	W	Wednesd. day	h	9	0	2
13	T	pretty favourable for the most part	face	10	11	2
14	F	Valentine and inclin. to Frogs	neck	11	25	3
15	S	Day 10 hours 26 min. long	and	Morn	14	
16	E	Quadragesima, 1 Sun. in Lent	thro.	0	40	5
17	M	No great Alteration in the Wea	arms	1	57	5
18	T	Days increas'd and Nights	sho.	3	10	
19	W	Ember Week short. 3 h. 21 m	brea.	4	11	7
20	T	ther only somewhat more windy	sto.	5		
21	F	now or about this time	h	5	30	0
22	S	Princess of Hesse born	and	6	0	10
23	E	Sunday in Lent	back	6	18	11
24	M	St. MATTHIAS	bow	Rises		
25	T	Still expect Winds and Frosty Wea	belly	7	9	0
26	W	Days increas'd 3 hours 54 min.	teins	8	42	1
27	T	Day 11 hours and a quar. long	loin	10	20	2
28	F	ther to the End of the Month	feet.	11	50	2

M	Sun	Sun	Saturn	Jupiter	Mars	Venus	Mercur	Wate
D	Rises.	Sets.	Rises.	Rises.	Sets.	Rises	Rises	
6	7	6	4	54	9	N	7	5
12	6	4	5	6	3	40	2	28
18	6	4	5	20	8	17	2	10
24	6	28	5	32	7	51	1	50
30		27	5	40	7	32	1	37

ARCH hath xxxi Days.

	M	Day	Sun's
	D	Break.	Declin.
Quarter 3 Day at 7 in the Morn.	6	4	41 S 18
W Moon 11 Day at 2 in the Morn.	12	3	50 1 N 4
Quarter 19 Day at 3 in the Morn.	18	3	35 3 24
W Moon 26 Day at 1 in the Morn.	24	3	19 5 45
	31	3	08 20

1 S St. David.	bled.	Morn.	3 M 52
2 E Sunday in Lent Chad B.	seer.	1 27	4 50
3 A Rough Winds with frequent Storms	hips	2 45	5 50
4 T of Hail, Rain, or Snow	thig.	3 52	6 50
5 W Days increased and Nights short.	kne.	4 30	7 48
6 T tened four Hours and an half	ham	4 51	8 45
7 F may now, or about this time be	legs	5 15	9 28
8 S Enter Y 9 Day at 5 ^h 50 Af.	and	5 28	10 12
9 E Sunday in Lent, Mid Lent Sun	ackl.	5 37	10 51
10 M Equal Day and Night in all H.	feet	5 46	11 35
11 T birable Parts of the World	t e	Sets	0 A 13
12 W Days 12 hours 11 min. long.	head	8 N 3	0 51
13 T be expected. Cam. latter Act	face	9 18	1 35
14 F Prince EDWARD born	neck	10 33	2 17
15 S Still expect Stormy Weather	th o.	11 50	3 2
16 E Sunday in Lent	arms	Morn.	3 51
17 M Days increased and Nights	and	1 3	4 45
18 T shortened 5 hours 20 min.	sho.	2 11	5 40
19 W About this time expect frosty	brea.	3 7	6 35
20 T Cuthbert Day 12 h. 3 qrs. long	stom	3 45	7 33
21 F cold dark Weather	heart	4 10	8 27
22 S Oxford and Cam. Term end	back	4 26	9 20
23 E Sunday in Lent, Palm Sunday	bow	4 40	10 15
24 M Days increased 5 h. 43 min.	belly	4 50	11 4
25 T	reins	5 0	11 43
26 W Now expect fair pleasant frosty	oins	Rises	Morn.
27 T Maunday Thu day	Cer	9 N 25	0 41
28 F GOOD FRID. Our SAV. Crucif	blad.	11 6	1 47
29 S Weather, but somewhat windy.	hips	Morn.	2 45
30 E EASTER DAY. Our SAV. Res.	thig.	1 37	3 51
31 M Ash. Mond. Day 13 h. and hal	kne.	1 50	4 53

Sun	Sun	Saturn	Jupiter	Mars	Venus	Mercur.	Watch
Rises.	Sets.	South.	Rises.	Sets.	Rises.	Rises.	too fast.

6	7	5	53	1 M	6	1 M	17	7 N	27	6 M	10	6 M	5	8	40
5	54	6	6	0	3	0	51	7	30	5	57	5	55	6	50
5	42	6	18	12 N	11	12 N	27	7	33	5	45	Sets	5	0	
5	30	6	30	11	47	12	5	7	37	Sets	7	N	20	3	7
5	15	5	45	11	19	11	40	7	42	6 N	53	8	18	1	5

A

APRIL hath xxx Days.

M. Day
D Break.

Last Quarter	1 Day at 6 at Night	6	2	4	10	N
New Moon	9 Day at 9 at Night	12	2	2	12	
First Quarter	17 Day at 6 at Night	18	1	4	14	
Full Moon	24 Day at 9 in the Morning	24	1	3	16	
		30	0	5	17	

1	T	Later Tuesday. All Fools Day hath	2	M	40	5
2	W	Frequent Showers of Rain with	knee	3	10	6
3	T	Days 13 hours 42 min. long	legs	3	29	7
4	F	pleasant springing Weather	and	3	44	8
5	S	Marriage comes in	ankl.	3	53	9
6	T	Sund. after Easter, Low Sund.	feet	4	2	9
7	M	may now be expected	toes	4	10	10
8	T	Days 14 Hours long	head	4	18	10
9	W	Oxford and Cambridge T beg.	and	Sets	11	
10	T	Days increas'd and Nights	face	8	N	27
11	F	shorten'd almost 7 hours	neck	9	45	1
12	S	Still expect fine springing Weather	thio.	10	57	1
13	T	Sund. after Easter, Mercordia	arms	Morn.	2	
14	M	Quind. Pasch. 1 Return	and	0	10	3
15	T	Prince WILLIAM born	sho.	1	5	4
16	W	Easter Term begins	brea.	1	50	5
17	T	Sund due East 46 min. past 6.	stom	2	17	6
18	F	Days 14 hours 41 min. long.	heart	2	38	7
19	S	Still showery Weather, in short	back	2	52	8
20	T	Sund. after Easter, Jubilee	be w	3	5	8
21	M	Tref Pasch. 2 Return.	belly	3	14	9
22	T	the whole Month seems to	eins	3	24	10
23	W	Days increased and Nights	oins	3	40	11
24	T	shortened. 7 h. and three quart.	feet.	Rises	Mon	
25	F	St. MARK the Evangelist	blad.	10	N	7
26	S	Sund due East 54 min. past 6.	hips	11	33	1
27	T	Sund. after Easter, Greater	hig.	Morn.	2	
28	M	Menf. Pasch. 3 Return.	knee	0	36	3
29	T	promise a very fruitful	ham	1	14	4
30	W	and pleasant Spring.	eg.	1	40	5

M	Sun	Sun	Saturn	Jupiter	Mars	Venus	Mercur.	W
D	Rises.	Sets.	South.	Rises.	Sets.	Sets.	Sets.	
6	5	3	6	57	10	N	2	11
12	4	52	7	8	10	32	10	51
18	4	40	7	20	10	8	10	26
24	4	30	7	30	9	40	10	0
30	4	18	7	42	9	17	9	34
								7
								56
								37
								8
								7
								4

MAY hath xxxi Days.

M	Day	Sun's
D	break.	Decl.

1	Quarter 1 Day at 8 in the Morning	ankl.	1 M 57	6 M 20
2	2 ^d Moon 9 Day at Noon	feet	2 5	6 57
3	3 ^d Quarter 16 Day at 12 at Night	and	2 15	7 37
4	4 th Moon 23 Day at 5 at Night	toes	2 23	8 22
5	T St. PHILIP and JACOB	head	2 32	9 3
6	F Brisk Winds with frequent Showers	face	2 41	9 42
7	S of Rain may now or about	neck	2 50	10 22
8	5 th Sun. after E. after Roga. Sun.	and	3 0	11 4
9	M Rogation Week	thro.	Sets	11 54
10	T this time be expected	arms	10 N 0	0 A 45
11	W 2 ^d Duc E. 7. 5. Alt. 29. 42.	sho	11 4	1 37
12	T Holy Thursday, Cux. Alt. 29.	brea.	11 50	2 32
13	F Days increased and Nights	from	Morn.	3 27
14	S shortened 8 hours 37 min.	heart	0 21	4 19
15	1 st Sunday after Easter	and	0 42	5 12
16	M Easter Term ends	back	1 0	6 0
17	T Now expect very warm Weather,	bow	1 12	6 48
18	W Dr. and Calm. T. end to mor	belly	1 21	7 37
19	T perhaps some Claps of Thunder	reins	1 30	8 23
20	F Days increased and Nights	loins	1 40	9 17
21	S shortened 8 hours 54 min.	tecr.	1 54	10 12
22	1 st Whit-Sunday Dele. of H. Ghost	blad.	2 12	11 12
23	2 ^d Whit-Monday. Now or about	hips	Rises	Morn.
24	3 ^d Whit-Tuesday	thig.	10 N 15	0 15
25	W Ember Week	kne.	11 6	1 20
26	T this time expect somewhat	ham	11 36	2 20
27	F Cloudy Wea. perhaps some Rain	legs	11 58	3 18
28	S Prince GEORGE born	ankl.	Morn.	4 11
29	F Trinity Sunday	feet	0 12	4 57
30	M Now more hot Craft. Trin. 1 ret.	and	0 22	5 40
31	T with sudden Claps of Tunder	toes	0 30	6 20
	W Dr. Term begins			
	T K. CHARLES II. Restoration			
	F Trin. Term beg. Pr. AMELIA			
	S Cooling Showers & CAROL born			

M	Sun	Sun	Saturn	Jupiter	Mars	Venus	Mercur.	Watch.
D	Rises.	Sets.	Sets.	Rises	Rises.	Sets.	Rises.	too flow.
6	4 9	7 51	2 M 55	9 N 12	4 M 10	8 N 52	4 M 12	4 1
13	4 5	8 0	2 30	8 43	4 09	14 3	52 3	45
20	3 57	8 7	2 7	8 14	3 45	9 30	3 32	9
27	3 47	8 13	1 41	Sets	3 34	9 40	3 15	17
31	3 42	8 18	1 12	5 M 11	3 20	9 48	2 55	0

JUNE hath xxx Days.

M
D

Sun
De

New Moon 8 Day at 2 in the Morning

First Quarter 15 Day at 8 in the Morning

Full Moon 22 Day at 1 in the Morning

Last Quarter 29 Day at 4 Afternoon

6	All	23
12	Twilight.	23
18		22
24		22

1	E	Sunday after Trinity	head	OM	37	6
2	M	Octab. Trin. 2 Return	face	0	46	7
3	T	Days decreas'd an	neck	0	55	8
4	W	shortened 9 hours 21 min.	and	1	5	9
5	T	Now expect fine pleasant Wea-	thro.	1	15	9
6	F	Days 16 hours 42 min. long	arms	1	42	10
7	S	ther with brisk Gales of Wind	sho.	2	12	11
8	E	Sund. af. Trin.	bre.	Sets	0	A
9	M	Longest Day 16 hours 43 min.	and	10	N	17
10	T	☉ in ♋ 5 h. p.m. longest day	stom	10	42	2
11	W	St. Barnab. K. GEORGE II. Ina.	heart	11	2	3
12	T	Days decreased and Nights	back	11	13	3
13	F	lengthened 1 minute	bow	11	24	4
14	S	☉ due E. 7h. 21 m. Alt. 29° 40.	belly	11	34	5
15	E	Sun. at Trin. K. GEO. II. pr	reins	11	45	6
16	M	Brisk Winds with Showers	loin.	Morn.	7	
17	T	Days 16 hours 39 min. long	scr.	0	1	7
18	W	Term ends of Rain may now or	blad.	0	12	8
19	T	☉ due E. 7h. 20 m. Alt. 29° 27	hips	0	34	9
20	F	about this time be expected.	hig.	1	10	10
21	S	Days decreased 7 minutes	kne.	2	0	11
22	E	Sunday after Trinity	ham	Rises	1	Morn
23	M	☉ d. E. 7h 18 m. Alt. 29° 0'	legs	9	N	30
24	T	St. John Bapt. or Midsum. Day	and	9	54	1
25	W	St. John's C. Dr. Election	nkl.	10	8	2
26	T	Now more warm with (perhaps)	feet	10	20	3
27		ays decreased and Nights in	toes	10	30	4
28		creased a quarter of an hour	head	10	40	4
29	F	Sun. af. Trin. St. Pet. & Paul	and	10	47	5
30		some Claps of Thunder	face	10	55	6

M	Sun	Sun	Saturn	Jupiter	Mars	Venus	Mercur.	W
D	Rises.	Sets.	Sets.	Sets.	Rises.	Sets.	Rises.	toons
6	3	39	8	21	12	N 4	2	M 42
12	3	39	8	21	12	18	2	15
18	3	40	8	20	11	52	4	47
24	3	44	8	16	12	30	1	22
30	3	43	8	12	11	50	2	37

JULY hath xxxi Days.

M Day Sun's
D Breaks Declin.

New Moon	7 Day at 1 in the Afternoon	6	No real	21 N	15
First Quarter	14 Day at Noon	12	Night.	20	7
Full Moon	21 Day at 11 the Morn.	18	0	12 18	48
3 ^d Quarter	29 Day at 10 in the Morn.	24	1	7 17	18
		31	1	44 15	20

1	Annals by Commencement at	neck	1	N 21	6 M	48
2	Now or about this time expect	thro.	11	37	7	34
3	Days decreased 27 min.	arms	Morn.		8	21
4	1 st Weather with sudden Claps	and	0	3	9	12
5	1 st Act 7 Days bet. Term c.	thro.	0	44	10	8
6	Sunday after Trinity	brea.	1	40	11	3
7	tho. a Becklet	from	Sets		0 A	1
8	of Thunder, which possibly may	heart	9 N	7	0	54
9	Days 16 hours long	back	9	20	1	47
10	be accompanied with as sudden	bow	9	30	2	35
11	Showers of Rain	belly	9	40	3	21
12	1 st Terms end	reins	9	50	4	9
13	Sunday after Trinity	loins	10	0	5	0
14	Fine pleasant Weather for	feet	10	15	5	48
15	Southen	blad.	10	33	6	45
16	☉ Du. E. 7 h 4 m. Alt. 24° 30'	hips	11	4	7	42
17	Days decreas'd and Nights	and	11	50	8	44
18	increased 1 hour 6 min.	thigh	Morn.		9	43
19	the Harvest may now be expected	knee	0	50	10	44
20	Sunday after Trinity	ham	2	10	11	41
21	Dog Days begin	legs	Rises		Morn.	
22	Day 15 hours 23 min. long	ankl.	8 N	27	0	30
23	Now and towards the end of the	feet	8	37	1	17
24	Day taken Coll. Election	toes	8	44	2	0
25	St. JAMES the Apostle	head	8	52	2	40
26	☉ Tue E. 6 h 56' Alt. 21° 30'	and	9	0	3	22
27	Sunday after Trinity	face	9	13	4	0
28	Days decreased 1 hour 40 min.	neck	9	26	4	45
29	Most expect flying Clouds	thro.	9	40	5	27
30	Most expect Gale of Wind	and	10	3	6	12
31	Princess AUGUST A LORD	arms	10	35	7	4

M	Sun	Sun	Saturn	Jupiter	Mars	Venus	Mercur.	Watch
D	Rises.	Sets.	Sets.	Sets.	Rises.	Sets.	Sets.	from East
1	55	8	10 N 41	2 N 27	2 M 30	9 N 20	8 N	41 5 21
2	3	7	57	10 17	12 2	25 9	8 8	40 5 53
3	12	7	48	9 54	11 37	22 8	58 8	35 5 54
4	21	7	39	9 30	11 14	20 8	44 8	23 5 34
5	30	7	26	9 6	10 47	18 8	30 8	6 4 42

AUGUST hath xxxi Days.

	M	Day	Sun's
	D	Breaks.	Decl.
New Moon 5 Day at 11 at Night	6	2	7 13 N
First Quarter 12 Day at 5 Afternoon	12	2	27 11
Full Moon 19 Day at 12 at Night	18	2	47 9
Last Quarter 28 Day at 3 Afternoon	24	3	5 7
	31	3	25 4

1	F	Lammas Day	sho.	11	N	27	7	N	5
2	S	☉ Due East at 6h. 48 Alt. 18° 50'	brea	Morn.			8		
3	F	10 Sunday after Trinity	stom	0	35	9			
4	M	Now expect flying Showers, yet	heart	1	55	10			
5	T	Days decreas'd and Nights	back	Sets		11			
6	W	increas'd 2 h. 15 min.	belly	7	N	37	0	A	31
7	T	Day 14 hours 24 min. long	and	7	51	1			
8	F	not so frequent as to hinder	bow	8	0	2			
9	S	the Harvest	reins	8	12	2			
10	F	11 Sunday after Trinity	loins	8	24	3			
11	M	☉ Due E. at 6h 38'. Alt. 15° 0'	seer.	8	43	4			
12	T	Day 14 hours 6 min. long	blad.	9	4	5			
13	W	Still expect fine pleasant	hips	9	45	6			
14	T	Days decreas'd 2 h. three quar.	thig.	10	40	7			
15	F	Weather for the Harvest	kne.	11	55	8			
16	S	Sun's rising Amplitude 16° 45'	and	Morn.		9			
17	F	12 Sunday after Trinity	ham	1	22	10			
18	M	Day 13 hours 41 min. long	legs	2	45	11			
19	T	Now expect hot sultry Days	ankl	Rises		Morn.			
20	W	with sudden Claps of Thunder, yet	feet	6	N	57	0		
21	T	Days 13 hours and a half long	and	7	7	0			
22	F	for the most part good Harv. Wea.	toes	7	15	1			
23	S	☉ due E. at 6h. 24'. Alt. 9° 54'	head	7	24	2			
24	F	13 Sun. af. Trin. St. Bartholo.	face	7	35	2			
25	M	Days decreased and Nights	neck	7	50	3			
26	T	increas'd 3 hours 9 min.	thro	8	11	4			
27	W	Now more cool with brisk Gales	arms	8	41	5			
28	T	Dog Days end	sho.	9	22	5			
29	F	of Wind to the End of the Month	brea	10	20	6			
30	S	Days 12 hours 53 min. long	and	11	38	7			
31	F	14 Sunday after Trinity	stom	Morn.		8			

M	Sun	Sun	Saturn	Jupiter	Mars	Venus	Mercur.	Watch
D	Rises.	Sets.	Sets.	Sets.	Rises.	Sets.	Sets.	too late
6	4 45	7 15	8 N 46	10 N 27	2 M 18	8 N 17	7 N 50	3 57
12	4 57	7 3	8 24	10 52	18 8	3 7	30 2	16
18	5 8	6 52	8 3	9 45	2 18	7 50	7 7	0 50
24	5 20	6 40	7 41	9 24	2 19	7 38	6 45	1 flow 10
31	5 35	6 25	7 18	9 02	19 7	23 6	14 3	58

SEPTEMBER hath xxx Days.

M	Day	Sun's
D	Breaks.	Declin.
6	3	40 2 N 17
12	3	57 0 4
18	4	10 2 S 25
24	4	25 4 45
30	4	36 7 3

New Moon 4 Day at 9 in the Morn.
 First Quarter 10 Day at 12 at Night
 Full Moon 18 Day at 3 Afternoon
 Last Quarter 26 Day at 5 Afternoon

1	M	This Month is likely to begin with heart	1	M	9	M	15
2	T	LONDON burnt Anno 1666 back	2		30	10	24
3	W	close cloudy Weather, which pos- bow	4		5	11	15
4	T	sibly may hold so for a few Days belly			Sets	0	A 5
5	F	Days decreas'd and Nights reins	6	N	27	0	57
6	S	increas'd 4 hours 10 minutes loins	6		40	1	47
7		15 Sunday after Trinity secr.	6		53	2	42
8	M	Still expect close cloudy Weather, blad	7		16	3	43
9	T	perhaps some misling Showers hips	7		53	4	44
10	W	☉ due E. at 6h. 2'. (hab. World thig	8		45	5	45
11	T	Equal Day and Night in all the kne.	10		0	6	44
12	F	The Sun in ☌ at ☌ 20' Morn. ham	11		15	7	45
13	S	Frequent Showers of Rain now or legs			Morn.	8	36
14		16 Sunday after Trinity and	0		40	9	24
15	M	Days 11 hours 47 min. long. ankl.	2		4	10	10
16	T	about this time may be expected feet	3		30	10	50
17	W	Ember Week toes	4		36	11	30
18	T	Days increased and Nights head			Rises		Morn.
19	F	increased 5 hours 12 min. and	5		45	0	11
20	S	Now more fair and pleasant, face	5		55	0	53
21		17 Sunday after Trinity neck	6		6	1	32
22	M	but not likely to continue; for thro.	6		22	2	18
23	T	Days decreased and Nights arms	6		48	3	5
24	W	increas'd 5 hours 33 min. and	7		24	3	57
25	T	the Month is likely to conclude sho.	8		15	4	50
26	F	Day 11 hours long brea.	9		24	5	42
27	S	with plenty of Wind and Rain stom	10		37	6	35
28		18 Sunday after Trinity heart			Morn.	7	24
29	M	St. Michael the Arch Angel back	0		10	8	20
30	T	Days 10 hours three quar. long bow	1		40	9	12

M	Sun	Sun	Saturn	Jupiter	Mars	Venus	Mercu.	Watch
D	Rises.	Sets.	Sets.	Sets.	Rises.	Sets.	Rises	too flow
6	5 47	6 13	6N 58	8 N 42	2 N 19	7 N 12	5M 55	5 40
12	5 0	6 0	6 37	8 23	2 19	7 3	4 58	7 47
18	5 13	5 47	6 16	8 3	2 19	6 50	4 31	9 46
24	6 25	5 35	5 56	7 45	2 19	6 42	4 28	11 37
30	6 37	5 23	5 34	7 25	2 19	6 36	5 6	13 15

OCTOBER hath xxxi Days

New Moon	3 Day at 6 at Night	6 4	5	10
First Quarter	10 Day at 10 in the Morn.	12 5	11	5
Full Moon	18 Day at Noon	18 5	11	13
Last Quarter	26 Day at 10 in the Morn.	24 5	22	15
		31 5	33	17

1	W	This Month is very likely to	belly	3	M	5	10	M
2	T	Days decreased and Nights	reins	4	35	10		
3	F	increased about 6 hours	loin.					
4	S	begin with Showery Weather	feet.	5	N	10	0	A
5	E	19 Sunday after Trinity	blad	5	30	1		
6	M	Days 10 hours 19 min. long	hins	6	0	2		
7	T	Nights 13 h. 45 min. long	thig.	6	46	3		
8	W	Now more fair accompany'd with	kne.	7	51	4		
9	T	Dennies	and	9	10	5		
10	F	Drf. and Camb. Terms begins	ham	10	37	6		
11	S	K. Geo. II. Cr. cool frosty Morns	legs	11	57	7		
12	E	20 Sunday after Trinity	ankl.			8		
13	M	Day 9 hours 50 min. long	feet	1	18	9		
14	T	Now expect some gentle	toes	2	37	9		
15	W	Showers of Rain	head	3	47	10		
16	T	Days decreas'd and Nights	and	5	0	10		
17	F	increased 7 hours 7 min.	face	6	7	11		
18	S	St. LUKE the Evangelist	neck					
19	E	21 Sunday after Trinity	thro.	4	N	38	0	
20	M	Tres Mich. 1 Ret.	arms	5	0	1		
21	T	High Winds with heavy Showers	and	5	31	1		
22	W	Princess of ORANGE born	sho.	6	15	2		
23	T	Michaelmas Term begins	breast	7	1	3		
24	F	Days 9 hours 7 min. long	stom	8	30	4		
25	S	Crispin Showers of Rain may now	heart	9	54	5		
26	E	22 Sund. after Trin. be expected	and	11	20	6		
27	M	Mens. Mich. 2 Return	back					
28	T	St. SIMON and JUDE Apost	belly	0	42	7		
29	W	Still windy to the End	bow	2	0	8		
30	T	K. GEORGE II. born 1683	reins	3	31	9		
31	F	Days 8 hours 41 min. long	loins	5	11	10		

M	Sun	Sun	Satur	Jupiter	Mars	Venus	Mercur	Wend
D	Rites.	Sets.	Rises.	Sets.	Rises.	Sets.	Rises.	to Fall
6	6	50	5	10	5	M	10	7
12	7	2	4	58	5	50	6	50
18	7	14	4	46	5	32	6	30
24	7	26	4	34	5	15	6	10
31	7	37	4	23	4	50	5	47

NOVEMBER hath xxx Days.

M	Day	Sun's
D	Break	Decl.
6	5	41 19 S 3
12	5	48 20 24
18	5	54 21 32
24	6	0 22 26
30	6	3 23 3

New Moon 2 Day at 4 in the Morn.
 Quarter 9 Day at Noon
 Full Moon 17 Day at 4 in the Morn.
 Quarter 24 Day at 11 at Night

1	S	All Saints	feet.	6	M	47	11	16
2		23 Sunday after Trinity	blad.			Sets	0	A 15
3	M	C. An. 3 R. All Souls C. El	hips	4	N	31	1	19
4		Warm and pleasant Weather for	thig.	5		30	2	24
5		Gun Powder Plot anno 1605	kne.	6		50	3	31
6	T	Day 8 hours 21 min long	ham	8		12	4	28
7	F	the Season of the Year, but	legs	9		40	5	21
8	S	Days decreased 8 hours and a half	ankl.	11		5	6	10
9		24 Sunday after Trinity	feet			Morn.	6	56
10	M	somewhat inclin'd to be windy	and	0		23	7	37
11	T	Martin Bishop of Tours	toes	1		37	8	15
12	W	Craft Mart. 4 Return	head	2		50	8	57
13	T	Day 8 hours long	face	4		2	9	33
14	F	Days decreas'd and Nights	neck	5		17	10	16
15	S	increas'd 8 hours 3 quarters	and	6		30	11	0
16		25 Sunday after Trinity	thro.	7		42	11	50
17	M	Now expect cold frosty Weather	arms			Rises		Morn
18	T	Octab. Mart. 5 Return	sho.	4	N	9	0	40
19	W	Princess of WALES born	brea	5		6	1	30
20	T	but soon followed by some sort	and	6		15	2	21
21	F	Days decreased 9 h. or better	stom	7		35	3	15
22	S	of downfall as Sleet or Rain	heart	8		54	4	5
23		26 Sunday after Trinity	back	10		20	4	55
24	M	Days 7 hours 34 min. long	bow	11		40	5	40
25	T	S. Catherine. Quin. Mar. 6 R	belly			Morn	6	23
26	W	Moderate fine Weather for the	reins	1		5	7	12
27	T	Salut. Coll. Election	loin	2		50	8	0
28	F	Term ends (Season	feet.	4		2	8	50
29	S	Marriage goes out	blad.	5		37	9	48
30		Adv. Sund. St. ANDREW Ap	hips			10	10	47

Count	Sun	Saturn	Jupiter	Mars	Venus	Mercur	W. Arch
Ref.	Sets.	Rises.	Sets.	Rise	Sets	Sets.	too flow
7 30	4 10	4 M28	5 N26	2 M 3	6N 36	4 N22	14 46
7 38	4 2	4 6	5 6	1 8	6 40	4 21	13 15
8 3	3 54	3 45	4 46	1 0	6 42	4 26	11 18
8 13	3 47	3 22	4 25	1 45	6 47	4 36	8 36
8 18	3 42	3 0	4 5	1 40	6 47	4 52	6 15

DECEMBER hath xxxi. Days.

	M	Day	Sun
	D	breaks	De
New Moon 1 Day at 2 Afternoon	6	6	4 23 52
First Quarter 8 Day at 6 at Night	12	6	3 23 52
Full Moon 16 Day at 10 at Night	18	6	3 23 52
Last Quarter 24 Day at 9 in the Morning	24	6	1 22 52
New Moon 31 Day at 2 in the Morning	31	5	56 21

1	M	This Month is likely to begin	high.	3	N	3	11	M
2	T	with brisk Winds, cold Frosts, but	kne	4		10	0	4
3	W	Days 7 h. 22 min. long	ham	5		35	2	
4	T	not much downfall	legs	7		0	3	
5	F	Days decreased and Nights	and	8		30	3	
6	S	increased 9 hours 23 min.	ankl.	9		52	4	
7	F	2 Sund. in Adv. Ps. Louisa 5 feet	feet	11		10	5	
8	M	Shortest Day at Notting. is 9h toes	Morn.	6				
9	T	24 min. at Lond 8 h. 50 min.	head	0		22	6	
10	W	☉ in W at 9 h. 14 m. at Night	face	1		34	7	
11	T	which makes the shortest Day neck	neck	2		47	8	
12	F	at Notting. to be 7 h. 18 m. and	and	4		0	8	
13	S	and at London 7 hours 35 m. thro	thro	5		15	9	
14		3 Sunday in Advent	arms	6		27	10	
15	V	Now or about this time may	fao.	7		40	11	
16	T	be expected cold dark misty	brea.	Rise,	Morn			
17	W	Ember Week	and	3	N	5	0	
18	T	Days 7 hours. 21 min. long	Rom	5		14	0	
19	F	Weather, accompanied for the	heart	6		32	1	
20	S	most part with great Rains	back	7		55	2	
21	F	4 Sun. in Adv. St. Thomas Ap	bow	9		12	3	
22	M	Days increased and Nights	belly	10		35	4	
23	T	decreased 9 min.	reins	12		0	4	
24	W	Days 7 hours and a half long	and	Morn.				
25	T	CHRISTMAS DAY	loins	1		22	6	
26	F	St. STEPHEN Proto-Martyr	feet.	2		52	7	
27	S	St. JOHN the Evangelist	blad.	4		28	8	
28	F	1 Sun. af. Christm. Innocents or	hips	6		0	9	
29	M	The Year is Herod's murd. Inta	thig.	7		15	10	
30	T	likely to concl. with boister. Wea.	kne.	8		16	11	
31	W	Days increas'd 24 Minutes	ham.	8		51	0	4

(M)	Sun	Sun	Saturn	Jupiter	Mars	Venus	Mercury	Wend
D	Rises.	Sets.	Rises.	Rises.	Rises.	Sets.	Sets.	Wend
6	8	21	3	39	2M34	8M22	1M30	6N4
12	8	21	3	39	2	11	8	2
18	8	20	3	40	1	48	7	42
24	8	16	3	44	1	27	7	20
31	8	9	3	51	0	52	6	58

TABLE of all the Kings and Queens of *England* since the Conquest.

The Year of the Birth of each King and Queen; also the Year, Month, and Day, whereon they began to reign: beginning the Year the first Day of January, 1746.				The Length of each Reign.			The Years expired since each Reign be- gan and ended.	
Names.	Born.	Began to Reign	Y. M. D.	Beg	End			
William Conq.	1027	1066 October 14	20 10 26	580	659			
William Rufus	1057	1087 Septem.	12 10 24	559	646			
Henry I.	1058	1100 August	23 5 4	646	603			
Stephen	1105	1135 Decem.	18 10 2	603	592			
Henry II.	1134	1154 October 25	34 8 11	592	557			
Richard I.	1156	1189 July	6 9 9	557	547			
John	1166	1199 April	6 17 6	547	530			
Henry III.	1207	1216 October 10	36 1 0	530	474			
Edward I.	1239	1272 Novem.	16 34 7	474	439			
Edward II.	1284	1307 July	7 9 6	439	419			
Edward III.	1312	1327 January 20	50 5 1	419	369			
Richard II.	1366	1377 June	21 2 3	369	347			
Henry IV.	1367	1399 Septem.	29 13 5	347	333			
Henry V.	1389	1413 March	20 9 5	333	322			
Henry VI.	1421	1422 August	31 38 6	322	285			
Edward IV.	1442	1461 March	4 22 1	285	263			
Edward V.	1471	1483 April	9 0 2	263	263			
Richard III.	1443	1483 June	22 2 2	263	261			
Henry VII.	1457	1485 August	22 23 8	261	237			
Henry VIII.	1492	1509 April	22 37 9	237	199			
Edward VI.	1537	1547 January	28 6 5	199	193			
Mary I.	1516	1553 July	6 5 4	193	188			
Elizabeth	1533	1558 Novem.	17 44 4	188	143			
James I.	1566	1603 March	24 22 0	143	121			
Charles I.	1600	1625 March	27 23 10	121	97			
Charles II.	1630	1649 January	30 36 0	97	61			
James II.	1633	1685 February	6 4 0	61	57			
Mary II.	1662	1689 Feb.	13 5 10	57	52			
William III.	1650		13 13 0	57	44			
Anne	1665	1702 March	8 12 4	44	32			
George I.	1660	1714 August	1 12 10	32	19			
George II.	1683	1727 June	11	whom God preserve.				

A Compendious TABLE of INTEREST.
 Shewing the Interest of any Sum of Money from a Month
 to a Pound; for any Number of Days, at any Rate
 Interest.

N ^o .	l.	s.	d.	q.	N ^o .	l.	s.	d.	q.
1000000—	2739	14	6	0 .92	1000—	2	14	9	2
900000—	2465	15	0	3 .29	900—	2	9	3	3
800000—	2191	15	7	1 .50	800—	2	3	10	0
700000—	1917	16	1	3 .89	700—	1	18	4	1
600000—	1643	16	8	2 .19	600—	1	12	10	2
500000—	1369	17	3	0 .49	500—	1	7	5	3
400000—	1095	17	9	2 .79	400—	1	1	11	0
300000—	821	18	4	1 .09	300—	0	16	5	1
200000—	574	18	10	3 .40	200—	0	10	11	2
100000—	273	19	5	1 .70	100—	0	5	5	3
90000—	246	11	6	0 .32	90—	0	4	11	0
80000—	219	3	6	0 .96	80—	0	4	4	2
70000—	191	15	7	1 .59	70—	0	3	10	0
60000—	164	7	8	0 .22	60—	0	3	3	1
50000—	136	19	8	2 .85	50—	0	2	8	3
40000—	109	11	9	1 .48	40—	0	2	2	1
30000—	82	3	10	0 .11	30—	0	1	7	2
20000—	54	15	10	2 .74	20—	0	1	1	0
10000—	27	7	11	1 .37	10—	0	0	6	2
9000—	24	13	1	3 .23	9—	0	0	5	3
8000—	21	18	4	1 .10	8—	0	0	5	1
7000—	19	3	6	2 .96	7—	0	0	4	2
6000—	16	8	9	0 .82	6—	0	0	3	3
5000—	13	13	11	2 .58	5—	0	0	3	1
4000—	10	19	2	0 .55	4—	0	0	2	2
3000—	8	4	4	2 .41	3—	0	0	1	3
2000—	5	9	7	0 .27	2—	0	0	1	1
1000—	2	14	9	2 .14	1—	0	0	0	2

R U L E.

Multiply the Sum by the Number of Days; and that Product by
 Rate per Cent. Then cut off the two last Figures to the right
 and the rest you must find in the Table.

Example, What is the Interest of 100 l. for 365 Days at 5 per

N^o. of Days 365

multiply by 100

Product 36500

multiply by 5 Rate p. Ct.

182500

Then in the Table

against 1000 is 2 14 9 2 .14

800 2 3 10 0 .11

20 0 1 1 0 .60

5 0 0 3 1 .10

Ans^r. 5 0 0 0 .00

WITHIN the Sphere of the Earth's Orbit will happen Four Eclipses this Year. Twice will the Moon in her wandering Course interpose and hide the Splendor of the Sun from falling on the Earth or its Atmosphere: And twice will the Earth in its Course, so fall in a Line between the Sun and Moon, as to hinder her from receiving the Light she borrows from the Sun, to enlighten the Earth by Reflection. They happen in the following Order:

The First is of the Moon on *Monday, February 24*, between 2 and 3 in the Morning, and consequently invisible at *London*. But Mr. *Edward Clemetson* of *Melton-Mowbray* observes, that in the Eastern Coasts of *Africa* Lat. 13° O'. South, and Long. 35° O'. East from *London* the Moon will rise in the Middle of the Eclipse. And Mr. *John Skay* of *Long Compton* gives us the Times thereof for the following Places:

		Begin	Mid.	End	Dig.
Place	{ <i>Hoaiagan in China</i>	10 1.	11 27 13	1	2 46 8 42
	{ East End of Java	9 55	11 5 12 39		
	{ Jerusalem	4 41	5 53 7 27		
	Feb. 24				

The Second is of the Sun, on *Tuesday* the 11th Day of *March*, between Two and Three in the Morning, consequently invisible to the Inhabitants of *Great-Britain*. But the said Mr. *Skay* takes notice, that at *Fort St. George* in the East Indies it will be a pretty large Eclipse, beginning *March* 11, 5^h. 26'. Middle 6^h 41. and ends at 8 in the Morning, Durat. 2^h. 34 min. Digits eclipsed 9° 9'.

The Third is of the Moon, *August* the 19th visible. The Times whereof as calculated and sent us by several of our ingenious Contributors, we shall exhibit in the following Table:

	Beg.	Midd.	End	Dur.	Dig.
Mr. Rob. Robinson, Stockton	10 20	11 43	1 M 5	2 4	5 45
Mr. J. Randles for	{	London	10 59	12 12	1 31
		Vienoa	12 0	1 12	2 32
		Wem, Shropf.	10 49	12 1	1 21
Mr. Tho. Harbridge for London	10 29	11 49	1 9	2 40	6 31
Mr. W ^m Mobbs for Heath	10 43	11 53	1 19	2 36	6 6
Mr. Tho Wade for London	10 24	11 48	1 11	2 47	5 50
Mr. J. Dodd	{	Hawkstone	10 35	11 55	1 15
		Chester	10 33	11 52	1 13
Mr. Rationalis for Hexham	10 14	11 35	12 57	2 43	6 17

		Beg.	Mid	End	Dur.
Mr. Tho. Mofs for	London	10 25 11 48	M 11		
	Preston, Lanc.	10 15 11 3	1 2		2 4
	Hanover	11 5 12 28	1 51		
Mr. Dion. Williams	London	10 2 11 2	2 44		
	Dublin	9 32 10 5	12 14		2 42
	Liverpool	9 50 11 1	2 32		
{ By Brent's Tab. { Mr. Jam. Elgar jun. { By Leadbetter	London	10 38 11 57	1 17		2 38
	Kintbury	10 33 11 57	1 12		
	London	10 55 12 1	1 42		2 47
	Kintbury	10 50 12 1	1 37		
Mr. W. Honnor	Saffr. Walden, Eff.	10 26 11 49	1 12		2 45
	Burcheſter, Oxf.	10 20 11 4	1 6		
Mr. Rich. Skay for	Coventry	10 55 12 12	1 30		2 38
Mr. Edw. Clemetſon for	London	10 47 12	1 23		2 38
Mr. John Williams	Whitford, Flintſ.	10 28 11 47	1 7		2 38
Mr. John Skay for	Long-Compton	10 56 12 13	1 34		2 38
Mr. Ch. Bottrel for	London	10 2 11 2	(2 44)		
	Bristol	9 52 11 1	2 34		2 42
	Lands End	9 38 10 59	12 21		
Mr. Ralph Hulſe,	London	10 46 12 8	1 24		2 38

Mr. *Thomas Comper* of *Wellingborough* has favoured us with the aforeſaid *Eclipse* for the Meridian of *London*, from *Brent's* Tables; exhibiting the Times from the Beginning to the End, at every Digit of Obſcuration as below:

		H	M	S				
App. Time from the Beginning to the Middle	Beginn. 19 Aug. at	10	37	59	App. Time from Middle to the End of the Eclipse	6	Dig. ecl. at	
	1	10	45	46		5		
	2	10	54	0		4		
	3	11	3	2		3		
	4	11	13	26		2		
	5	11	25	51		1		
Midd. of Eclipse at		11	47	42	End of the Eclipse at			
		11	57	13				

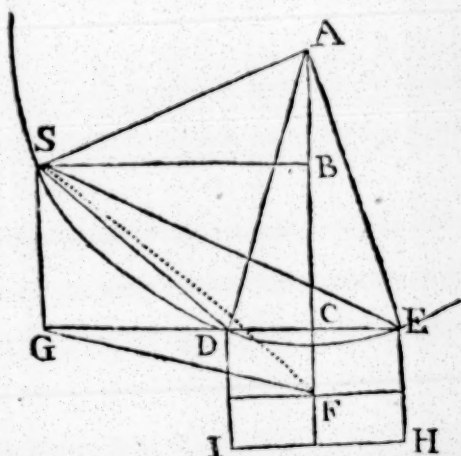
The Fourth and laſt is of the Sun on the 4th of Sept. between Nine and Ten in the Morning; but by reaſon of the Moon's great Southern Latitude is inviſible to moſt *Europeans*, but in the Southern Parts of the World will be a great Eclipse.

Mr. *James Elgar* obſerves, that *Venus* will be a Morning Star till *March 22*, and then become an Evening Star *January 5, 1747*.

Answers to the MATHEMATICAL Questions,
1745.

Question 41 answered by Mr. CHA. SMITH.

DEIH repre-
Field viewed
Station S, put
 $SG = RC = 96$
Height of the Sta-
above the Le-
E. and by hav-
it nce from
 $= 6784$ given,
(per 47 E. 1.)
 $= 451010, 56$
put $= p^2$, now
the Lines SD
SE including an
of $20^\circ 22' 30''$,
by inscribing the Triangle SDE in a Circle (as per Fig.)
Drawing the Radii AE, AD and AS, as also the Perpen-
AB upon BS parallel to GC, from whence it is plain
to E. 3) that the $\angle EAC = \angle DAC = \angle DSE$, the Sine
Cosine of which call s and c , and let $x = DE$ the Length
of the Field, then $\frac{x}{2} = DC = CE$, and $\frac{x}{3} = CF$, and (per
Geometry) $\frac{x}{2s} = AE = AD = AS$, also $\frac{cx^3}{2s} = AC$ but $AC -$
 $AB = \frac{cx - 2bs}{2s}$ again (per 47 E. 1.) $\overline{GF}^2 - \overline{CF}^2 = \overline{GC}^2$
 $= \frac{9p^2 - x^2}{9}$ and $\overline{SB}^2 + \overline{AB}^2 = \overline{AS}^2$ i. e. $\frac{9p^2 - x^2}{9} +$
 $\frac{6cx + 4b^2s^2}{4s^2} = \frac{x^2}{4s^2}$ this Equation properly reduced
 $x = 193,0212$, and the Content of the Field
 122433 square Yards $= 5,13205$ Acres.



The same answered by Mr. PAUL SHARP.

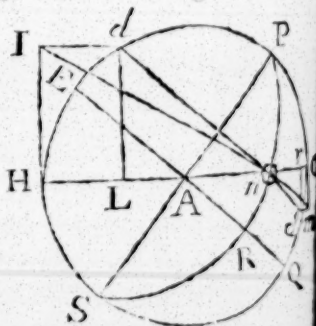
In the Figure above, there is given $SG = 96 = a$, and
B 3 SF

SE=678.4 (from whence GF is found =671.57319=b) in the $\angle DSE=29^{\circ} 22' 30''$ the natural Tangent of which calc.=.04147, and put x and y for the Sine and Cosine of the Arc FCC (Rad. being Unity.) Then (per Trig.) $1:b::x:bx=CE$ and $1:b::y:by=CG$, also $2:3::bx:1.5bx=DC$ $CE::b:1.5bx=GE$ and $by-1.5bx=GD$; now if each of the last Expressions be divided by a , we shall have the Tangents the ESG and DSG = $\frac{b-1.5bx}{a}$ and $\frac{by-1.5bx}{a}$ the Difference of which two Tangents (per Prob. 2. pag. 5. of the Supplement to the *Cent. Diary* for 1741 and 1742) is = $\frac{3bas}{a^2-1.6^2y^2-2.25bx^2}$ = c . per Quest. $\therefore 3bas = a^2c + b^2cy^2 - 2.25b^2cx^2$, but $y^2=1-x^2$ $\therefore x^2 + \frac{3ax}{3.25cb} = \frac{a^2+b^2}{3.25b^2}$; put $\frac{3a}{3.25cb} = 2n$ and $\frac{a^2+b^2}{3.25b^2} = m$; Then $x^2 + 2nx = m$ $\therefore x = \sqrt{m+n} - n = .09579$ = .9954 from whence the Area is found = 24830 Square Yards Q. E. I.

After the same manner was this Question solved by Mr. *Tho. Simpson*, Mr. *Bamfield*, Mr. *J. Ash*, Mr. *John Waine*, Mr. *Lotichius*, *Ers Rationalis*, Mr. *Rich. Gibbons*, Mr. *John Redwood*, Mr. *R. Filson*, Mr. *J. Williams*, Mr. *Tho. Cowper*, Mr. *Co. Stapley*, and several others; see the Catalogue.

The 42^d Question answer'd by Mr. J. TURNER.

CONSTRUCTION. Draw the Meridian HPOS and HO represent the Horizon; upon HO at H, erect the Perpendicular HL and therein set off the Sine of the given Altitude draw Ld parallel to HO meeting the Meridian at d , also draw Ld parallel to HL; from O let fall the Perpendicular Om , and set off from the Line of Sines the Sine of the Hour from Six = Az ; thro' n from L , draw the right Line Im , meeting Om in m , and draw dm parallel to HO meeting the Meridian in d , also draw dr parallel to Om , then draw the right Line dd , and parallel thereto to



for EQ. and at right Angles thereto the Line PS repre-
sents the Axis of the World, also the Meridian P & S at Sun

CALCULATION. The Altitude at Noon is equal Hd , and
 $=$ to the Sum of the Sun's Declination and Comple-
 ment of Latitude; there is also given its Complement to a
 Circle $= dO$, which is equal to Sum of the Latitude and
 Complement of Declination $= OP + P\odot$ because $1\odot = dP$
 and equally distant from the Pole; therefore in the right
 spheric Triangle $\odot PO$ we have the Sum of the Hy-
 pothenuse and Base $= 121^{\circ} 20'$, and the Angle $\odot PO = 62^{\circ}$
 the Hour Angle from Midnight given, whence as Radius
 $\sin$ of $\odot PO :: \text{Tang. } P\odot : \text{Tang. } PO$.

Therefore if the indefinite right Line BB be drawn, and
in AC be taken =

 $+ \text{Cofine } \odot \text{PO},$

upon AC a Segment

C) of a Circle be made

Contain an Angle of

20, the Supplement

The Sun's Altitude to a

circle, then AK be-

Equal Radius, and KC

Cofine of $62^{\circ} 30'$; ARK will be $= P \odot$ (in the first

the) and $CRK \equiv PO$. Hence the following THEOREM,

Let the Sum of Radius and the Sine of the Hour from Six
other Difference, so is the Sine of the given Altitude, to
Sine of the Difference of the Latitude and Complement
Declination.

This Theorem is evident at one View in the first Scheme ; by the Property of the Ellipsis $ER : RQ :: (d \odot : \odot d)$ and the Sine of the Sun's Depression at Midnight, which is to the Supplement of the given Altitude, gives twice the Complement of Declination, or subtracted therefrom twice the Latitude.

Mr. JOHN ASH of *Stockland* answers it thus :

As well known that the Sun's Declination taken from its Meridian Altitude leaves the Complement of the Latitude of the Place of Observation; and that as the Tangent of the Lat. : Radius :: Tang. of Sun's Declination : Difference of Meridional Difference.

Now in the present Case, there is given the Ascensional Difference 1 Hour 50 min. (which converted is $27^{\circ} 30'$) whose Sine call q , and the Sun's Meridian Altitude $= 58^{\circ} 40'$ its Sine is $29^{\circ} 20'$, whose Sine and Cosine call m and n ; also put x and y for the Sine and Cosine of half the Difference of the Sun's Declination and Complement of Latitude. Then (per Prob. 1 and 2 of the *Gent. Diary* 1741.) we shall have $\frac{my+nx}{ny-mx}$, and $\frac{mv-nx}{ny+mx}$ for the Tangents of the Comp. of Lat. and the Sun's Declination respectively. (per the above Analogy)

$$\frac{qmv+qnx}{ny-mx} = \frac{my-nx}{ny+mx} \therefore 2xy = \frac{2mn-2qn}{1+q} = 3145211$$

the Sine of $18^{\circ} 20'$, consequently the Latitude of the Place of Observation is $51^{\circ} 30'$, and the Sun's Decl. $20^{\circ} 10'$, answering May 10.

Q. E. D.

The same answered by Mr. THO. SIMPSON.

Put t = the Tangent of Declination, u = the Sine of the given Ascensional Difference and m = Tang. of the given Meridian Altitude; Then (per Spherics) $u : 1 :: t : \frac{t}{u}$ = the Tang. of the Comp. of Latitude. And (per Supp. 1. pag. 3 of the *Gent. Diary*) add the Tang. of Decl. to the Tang. of the Comp. of Lat. and their Sum will be equal to the Tang. of the given Meridian Altitude, i. e. $\frac{1+t}{u-t^2} = m$, from whence the Sun's Decl. will be found $= 20^{\circ} 10'$, and the Latitude of the Place $51^{\circ} 30'$. Q. E. D.

The same answered by Mr. J. WAINE.

Put s and q = Sine and Cosine of the Sun's Declination, and x and y of the Latitude, Then (per Spherics) $\frac{y}{x} : \frac{s}{c} :: R (=1) : \frac{sx}{cy} =$ the Sine of the Ascensional Difference $= 27^{\circ} 30' = u$, But the Co-Latitude + the Decl. = the Sun's Meridian Altitude, which is given $= 58^{\circ} 40'$, whose Sine call m , and then will $sx+cy=m$; $m-sx=cy$, which put for cy above makes $u = \frac{sx}{m-sx} \therefore sx = \frac{mu}{1+u} =$ Rectang.

of the Sines of the Latitude and Declination, but $cy + cny$

$$cy = \frac{m}{1+n} = \text{Rectangle of the Cosines, whence } \frac{m-mn}{1+n}$$

the Cosine of the Sum of Lat. and Declination = .31452

Sine of $18^\circ 20'$: the Latitude of the Place is $51^\circ 30'$.

the Sun's Decl. $20^\circ 10'$.

Mr. Rob. Robinson gave us a very curious Solution to this Question, and so did Mr. John Robinson: It was also truly and methodically sol'd by Mr. John Todd, Mr. Wm. Morris, Mr. James Smith, Mr. Wm. Kingston, Mr. Edw. Cross, Mr. Worcester, Mr. Sharp, Mr. Stapley, Mr. J. Taylor of Letwell, Mr. Thomas Comper of Wellingborough, and others.

Question 43. answer'd by Mr. THO. GARRARD.

Let ABC be the Triangle, and make CH = CA the shorter Side, draw AH and it will cut the bisecting Line CD at right

Angles in P, make PE = PD

and EH = DH = AD, then will

the Triangles CEH and CDB be

similar. Put $CD = 24 = b$,

$CB = 11 = d$, the $\angle BCD =$

$ACD = 35^\circ 35'$, whose Cosine

is .81, and let $x = CH = CA$;

Then as Rad. (=1) : $x :: q : qx$

$= EC$; hence $2qx - b = EC$,

Then (per similar Triangles)

$2x - b : b :: x : x + d = CB$;

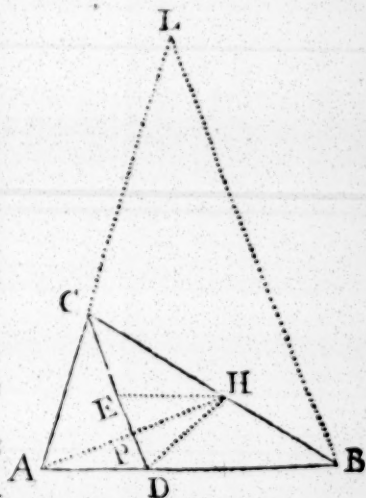
$2x - b : b :: x : x + d$

this Equation being solv'd will give

$$x = \frac{\sqrt{d^2 + b^2}}{4q} - \frac{dq + b}{2q} =$$

35.00218, hence we get $AB =$

36.00737 and $CB = 36.00218$. Q. E. D.



The same answered by Mr. J. ELGAR.

Produce AC and make $CL = CB$, draw the Line LB, and

let $b = CD = 24$, $d = BC - AC = 11$, $c = \text{Sine } \angle ACB =$

.44646 = Sine $\angle$ at L and $x = AC$, Then (per similar Tri-

angles) as $x : b :: 2x + d : \frac{2xb + bd}{x} = LB$ and (per Trigonometry)

metry)

metry) $s : x + d :: c : \frac{cx + cd}{s} = LB : \frac{2xb + bd}{x} = \frac{cx + cd}{s}$

and by Reduction $x^2 + dx - \frac{2bsx}{c} = \frac{dbs}{c}$ for $d = \frac{2bs}{c}$ put

$2n$, and we have $x = \sqrt{n^2 + \frac{dbs}{c}} + n = 25$, hence $BC = 36$

and $AB = 36,6$. *W.W.R.*

Mr. ED. CROSS of *Wetwang* in *Yorkshire* solves it thus:

Put $x = AC$ and $d = CB - CA = 11$, then will $CB = x + d$.
Let $a = CD = 24$, and s , and $q = \text{Sine}$ and C , sine $\angle ACD$
 $= \angle DCB = 35^\circ 35'$. Then by a well known Theorem

$\frac{sx}{a - qx} = \frac{-sx - sd}{a - qx - qd}$ = the Tang. of the $\angle ADC$ and BDC

then $qx^2 + qdx - ax = \frac{da}{2} = 132$, hence $x = 25 = AC$, CB
 $= 36$ and $AB = 36,605$.

The same answer'd by Mr. ROB. ROBINSON.

Here is known $CD = 24 = m$ $BC - AC = 11 = 2n$ and the
 $\angle ACD = \angle DCB = 35^\circ 35'$. its Secant call r , and let $2y =$
 $AC + BC$; Then $AC = y - n$, and $BC = y + n$, and $y^2 - n^2 =$
 $:: mr : 1, \therefore y^2 - mry = n^2$, solved $y = \frac{mr + \sqrt{4n^2 + m^2 r^2}}{2} =$
 $30,5022$, hence $AC = 25,0022$ $BC = 36,0022$ and $AB =$
 $36,5909$.

This Question was truly and ingeniously solved by Mr. *John*
Robinson, Mr. *Todd*, Mr. *Sharp*, Mr. *Reed*, Mr. *Taylor*, Mr. *Ward*,
Mr. *Simpson*, Mr. *Ash*, Mr. *Stapley*, Mr. *Turner*, and others.

Quest. 44. answered by Mr. SAM. FARRER the Proposer.

First $104 : 100 :: 1 : \frac{1}{1,04}$ the present Value of one Pound
due at the end of one Year, put this $= a$, then a^2 is the present
Value of the same due at the end of two Years, a^3 the present
Value of the same due at the end of three Years, &c. whence it
appears that if 1, 8, 27, 64, 125, &c. be respectively multiplied
into the Terms of the Geometric Series $a, a^2, a^3, a^4, a^5, \&c.$
expressing the present Value of one Pound to be received at the
end of 1, 2, 3, 4, &c. Years, the Sum of the Products there

ing (viz.) $a + 8a^2 + 27a^3 + 64a^4 + 125a^5 \&c.$ will (it is manifest) express the Value of this Annuity;

Now by taking the Differences of the Coefficients as in the Margin, it appears that the last Differences are all $= a$. Therefore multiplying the given Series by the

	1, 8, 27, 64, 125 &c.
1 diff.	7, 19, 37, 61 &c.
2 diff.	12, 18, 24 &c.
3 diff.	6, 6 &c.
4 diff.	0 &c.

binomial $1-a$ actually raised to that Power whose Index denotes the Order of those last Differences, the Product will be $a + 4a^2 + a^3$, this divided by $1-a$ gives $\frac{a + 4a^2 + a^3}{1-a}$ = 2535650 for the Value of the propos'd Annuity. Q. E. I.

Question 45 answered by Mr. GEO. STAPLEY.

Put $a=5$ and $c=20$, Then $\frac{c-a+\frac{3}{2}+\frac{1}{2}}{2} = 8$ (per Simpson's Laws of Chance, Prob. 25. Case 3.) take the 8 first Terms of $1+11^{20} = 137980$. which divided by 2^{19} is $= \frac{137980}{524288} = \frac{34495}{131072}$ = the Probability of the Play ending to the Advantage of A in 20 Games; and by taking the Sum of the five first Terms and dividing as before, we have $\frac{1549}{131072}$ for the same thing happening in the Favour of B, and their Sum $= \frac{9011}{32768}$ is the Probability that the Play will be ended in 20 Games; consequently that of the contrary is $1 - \frac{9011}{32768} = \frac{23757}{32768}$ $\therefore$ the Odds is as 23757 it to 9011, put $x = D$'s Share of the Money in Shillings: Then $23757 : 9011 :: x : 1050 - x$ $\therefore x = \frac{24044850}{32768} = 761, 25^c 408$ = Shilling $= 38 l. 1 3\frac{1}{2}$, whence C's Share is 14 l. 8 s. Q. E. D.

Mr. WM. JEPSON answers it thus:

Put $p=5$, $q=8$ and $n=20$ then $1+11^{20} = 1 + 20 + 100 + 1100 + 4845 + 15504 + 38760 + 77520 \&c.$ the Sum of the 8 Terms $= \binom{n-p+\frac{3}{2}-\frac{1}{2}}{2} = 137980$ which divided by 2^{19}

$$= \frac{137980}{524288}$$
 the Probability of the Play ending to the Advantage of A in 20 Games (see *Simpson's Laws of Chance*, p. 62) and the Sum of these five Terms (*viz.*) $190 + 1140 + 4^2 45 + 15504 + 38760 = \left(\frac{n-9+\frac{3}{2}+\frac{1}{2}}{2} \right) = 60439$; which $\times$ by 2 = 120878 and $120878 - 38760 + 20 = 82138$, which divided by $2^{10} = \frac{82138}{1048576} = \frac{41069}{524288}$ = the Probability of the same happening in favour of B. But $\frac{137980}{524288} + \frac{41069}{524288} = \frac{179049}{524288}$ $\therefore$ the Odds that the Play will not be ended in 20 Games is as 345239 to 179049 (*viz.*) as 1,92818 &c. to 1, or as 27 to 14 nearly; conseq. C's Share of the 50 Guineas $\pounds 17\ 18\ 70 \frac{767}{16384}$ and D's Part $\pounds 34\ 11\ 43 \frac{15617}{16384}$.

Mr. RICH. GIBBONS solves the 45th Quest. thus:

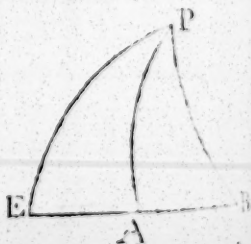
Per Simpson's Laws of Chance, Prob. 25. A hath $\frac{34495}{131072}$ Chance to be a Winner of five Stakes, and B hath $\frac{15115}{131072}$ Chance to win 8, their Sum is $\frac{49610}{131072}$ $\therefore$ the Odds that the Play will not be ended in twenty Games is as $131072 - 49610$ to 49610.

As we have received a great many Solutions to this Question, which not only differ from the Proposer's, but also one from another, we should be glad if some of our ingenious Contributors would favour us with a Solution that would establish the Laws of such Questions.

Question 46 answer'd by Mr. JOHN TODD.

Let P represent the Port they failed from, A and B, those arrived at, under the Equinoctial; put $a = \text{Tang. of half the given Diff. of Long.} = \frac{AB}{2}$; $b =$

Tang. of half the given $\angle AFB$, $s = \text{Sine of the Lat.} = EP$, $y = \text{Tang. of half}$



the Sum of the Angles EPA and EPB, and $x = \text{Tang. of half the Sum of the Arcs EA and EB}$: Then (y Prob. 1. Case 1.

of the *Suppl. to Gent. Diary*) we have $\frac{x+a}{1-ax} = \text{Tang. EB}$ and

$\frac{y+b}{1-by} = \text{Tang. } \angle \text{EPB}$ and (by Prob. 2. Case 1.) we have $\frac{x-a}{1+ax}$

$= \text{Tang. EA}$, and $\frac{y-b}{1+by} = \text{Tang. } \angle \text{EPA}$, and (*per Spherics*)

$1:s::\frac{y-b}{1+by}:\frac{x-a}{1+ax}$, and $1:s::\frac{y+b}{1-by}:\frac{x+a}{1-ax} \therefore \frac{sy-sb}{1+by}$

$=\frac{x-a}{1+ax}$, and $\frac{sy+b}{1-by}=\frac{x+a}{1-ax}$, These brought out of

Fractions will be $sy-sb+sayx-sabx=x-a+bx-y-by$, and

$sy+sb-sayx-sabx=x+a-bxy-bay$, and by adding and

subtracting these to and from one another, we have $2sy-$

$2sabx=2x-2bay$, and $2sayx-2sb=2byx-2a$ and by Trans-

position and Division $\frac{x}{y}=\frac{s+ba}{1+sab}=,7933567$ and $xy=$

$\frac{sb-a}{sa-b}=1,261674$ these x^d together give $x^2=1,0009575$

here $x=1,0004786=\text{Tang. of } 45^\circ 00' 49$, hence $PA=56^\circ$

$10' 46''$ and $PB=71^\circ 15' 39''=\text{the Distance sought.}$

The same answer'd by Mr. J. WAINE.

Let P represent the Port sailed from, A and B those arrived

at under the Equinoctial; here is given the Latitude $= PE =$

$50^\circ 00'$ whose Sine call s , $BA=30^\circ 00'$, whose Tangent call

n , and the Tangent of BPA call t , put $x = \text{Tangent of APE}$;

Then will $\frac{t+x}{1-tx} = \text{Tang. of } \angle \text{BPE}$, and (*per Spherics*) as 1

(= Rad.): $s::\frac{t+x}{1-tx}:\frac{ts+sx}{1-tx} = BE$, again $1:s::x:sx =$

AE ; and $AE+AB=BE::\frac{n+sx}{1-nx}=\frac{ts+sx}{1-tx}$ which brought

out of Fractions is $tsx^2-nx^2+tnx-tns^2x=n-ts$; put $2r=$

$\frac{tn-tns^2}{ts-nx^2}$ and we have $x^2+2rx=\frac{n-ts}{ts-nx^2}$ compleat the Square

and $x=\sqrt{\frac{n-ts}{ts-nx^2}+r^2}-r=,75409=\text{Tang. of } 37^\circ 1' 10'$

$\therefore PE$

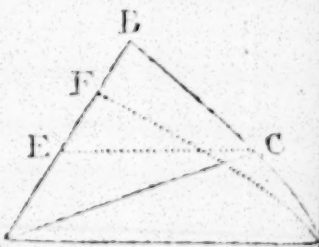
∴ $PB=71^{\circ} 15' 40''$, and $PA=56^{\circ} 10' 46''$ the req^d Distance

This Question was truly and ingeniously solved by the
Mr. *Whitehead* Mr. *Bob Robinson* Mr. *Turner*, Mr. *Simpson*,
Sharp, Mr. *Wade*, *Ens Rationalis* Mr. *Ingman*, Mr. *Coxeter*,
Stapler, Mr. *Eailler*, *Philotechnus*, Mr. *John Williams*, Mr. *Feu*
Worcester, and others, see the Catalogue at the End of the Book.

Question 47. answered by Mr. AB. LORD the Proposer.

This Question (thro' a Mistake in the Composer of the Problem) is unlimited, for the Length of the Ditch is (by the Problem) given = 12 Chains, and then the Solution is as below.

Here is given the $\angle BAD = 60^{\circ}$ whose natural Sine call s , and the $\angle s BAC = 40^{\circ}$, also the $\angle CAD = 20^{\circ}$ per Quest. likewise the Area of the Triangle $ABD = 80$ Ch². = A , and $AC = 12$ Chains; from C draw the Line CE parallel to DA , and from A



$\angle$ at D let fall the Perpendicular DF then (per plain Trig) in the Triangle ACE we have given all the Angles and the Side AC , to find the Side $EC = 8,9067$ and $EA = 4,7592$; for AC put a , for EC put b , for EA put c , and hence then (per 4 E. 6.) $x : b :: x + c : \frac{bx + bc}{x} = AD$, and

∴ $s : \frac{bsx + bsc}{x} = FD$ and by the Rule for finding the Area of a Triangle $\frac{bsx^2 + 2bscx + bsc^2}{2x} = A$, which Equation reduced gives

$8,7371$ Chains, $AB = 13,4763$ and $AD = 13,7962$.

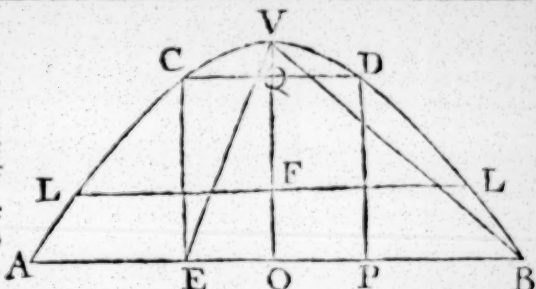
Also, If the above Expression be put into Fluxions and give $x = c$ in that Case BE must be equal to AE .

Mr. *Rob. Robinson* supposing the Length of the Ditch to be given, has favoured us with a curious Solution to this Question, and Mr. *J. Terrey* has done the same.

Question 48 answer'd by Mr. CHA. SMITH.

In the Parabola AVB there is given $VF = 22$, where $VF = 88 = d$, the Latus Rectum, and the Area of the Triangle $EVB = 1048 = b$, put $x =$ the Semiordinate $AO = 0$.

E = the Base
of the Triangle;
then $y - x =$ the
Semiordinate QD
 $2y - 2x$ EP =
QO = the Side of
the Square, whence
the Abscissa VO
(= the Perpendi



cular of the Triangle) and VQ are $\frac{2b}{y}$ and $\frac{2b - 2y^2 + 2yx}{y}$;

and by common Properties $\frac{2b - 2y^2 + 2yx}{y} : y - x :: \frac{2b}{y} : x^2$,

$\therefore y = \frac{2x^3 + 4bx}{2b + 2x^2}$; again, $\frac{2b}{y} : x :: x : d$, hence $y = \frac{2bd}{x^2} =$

$\frac{2x^3 + 16x}{2b + 2x^2}$, Reduced $x^5 + 2096x^3 - 184448x^2 = 193301504$,
consequently $x = 52,489 = AO = OB$; $VO = 31,308$ and the
Area 2191.

The same answered by Mr. ROB. ROBINSON.

Let the Parameter = 88 = a , Area of the Triangle = 1048
= A , and $y = DQ$, then per Nature of the Curve $VQ =$
 $\frac{y^2}{a}$, $VO = \frac{y^2}{a} + 2y$, $AO = \sqrt{y^2 + 2ay}$, and $EB = y + \sqrt{y^2 + 2ay}$,

then will $\frac{y^2 + 2ay}{a} \times y + \sqrt{y^2 + 2ay} = 2A$, which reduced is

$y^5 + 4ay^4 + 4a^2 + 2A \times y^3 + 4Aay^2 = 2A^2a$, this brought into
Numbers is $y^5 + 352y^4 + 33072y^3 + 368896y^2 = 193301504$
solv'd $y = 14,46432 = DQ$, hence $VO = 31,3061$, $AO = 52,4875$
and the Area of the Parabola = 2190,9048.

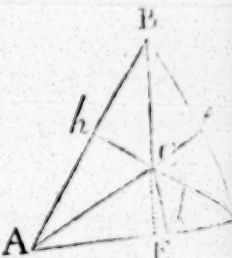
The same answer'd by Mr. CHARLES DYER.

Let $p = 22 =$ the Distance of the Focus from the Vertex,
then will $4p =$ Parameter, put $x = AO$, $y = OP$, and $a =$ the
Area of the Triangle $EVB = 1048$, then $4p : x + y :: x - y :$
 $2y$, hence $y = \sqrt{x^2 + 16p^2} - 4p$, but $\frac{x^2}{4p} = VO : \frac{8pa}{x^2} = x +$

$\sqrt{x^2 + 16p^2} - 4p = EB$; or $8pa^2 = x^5 + 2ax^3 - 8apx^2$; Redu-
ced $x = 52,4875$, $y = 14,46432$, $VO = 31,3061$, and the
Area of the Parabola = 2190,9048. This

This Question was truly answered by Mr. *Tho. Cowper*, *Simpson*, Mr. *Kingstone*, Mr. *Stapley*, Mr. *Bamfield*, *Philoteus*, Mr. *Ash*, Mr. *Gibbons*, Mr. *John Williams*, Mr. *Waine*, Mr. *Wade*, Mr. *Sharp*, Mr. *Todd*, Mr. *Wade*, *Ens Rationalis*, and others.

Question 49 answered by Mr. WM. M—R—S.

Draw three right Lines from the Angular Points A, B and D, to bisect their opposite Sides, and the Point of Intersection (C) will be the Centre of Gravity, then having the Sides, the Angles are easily found, i.e. that at A = $53^{\circ} 8'$ that at B = $64^{\circ} 0'$, and that at D = $62^{\circ} 52'$, Then as $DB + DE : DB - DE :: \text{Tang. of } A$  $\frac{1}{2}$ the Sum of the Angles DBE and DEB : Tang. of $\frac{1}{2}$ Diff. $24^{\circ} 46' : \angle DBE = 33^{\circ} 54'$; Now since the Logarithm of two Sides of any plain Triangle, added to the Logarithm of the included Angle is = the Log. of twice the Area of the Triangle: from the Logar. of 10560 (=twice the Area of the Triangle BCD = $\triangle BCA = \triangle ACD$) subtract the Logarithms of 178 (=BD) and $33^{\circ} 54'$ (= $\angle DBE$) and the remainder is = Logarithm of 106,4 = BC, in like manner is found = 118,5 and DC = 107,7.

The same answered by Mr. JOHN ROBINSON.

Here is given AD = 200, AB = 198, and BD = 178, from which find $Cd = m$, and the $\angle ADB$, the Cosine of which is q , and put $x = DC$, also find Ce (perpendicular to BD) = then $x : 1 :: m : \frac{m}{x} = \text{Sine of the } \angle ADC$, and $x : 1 :: n : \frac{n}{x}$

Sine of the $\angle ADC$, then $\frac{mn}{x^2} = \sqrt{1 - \frac{m^2}{x^2}} \times \sqrt{1 - \frac{n^2}{x^2}} = q$

which reduced gives $x = \sqrt{\frac{m^2 + n^2 - 2mnq}{1 - q^2}} = 107,58$, hence

BC = 106,34 and AC = 118,66 the Distances required.

The same answered by Mr. THO. COWPER.

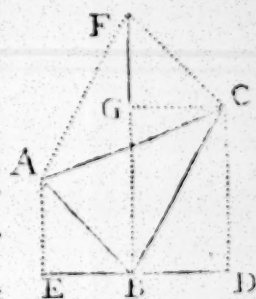
Let ABD be the proposed angular Garden, in which having the Sides given I find (per plain Trig.) the Angle BAD = $7^{\circ} 48''$ (whose Sine call s and Cosine c) the Perpendicular $CD = 52,8$ and $CB = 53 \frac{1}{2}$.

Now $b = Cd = 52.8$, $d = Cb = 53\frac{1}{3}$, x and $y =$ Sine and Cosine of $LCAd$; Then $sy - cx =$ Sine $LCAb$, and as $x : b :: 1 : AC$, also as $1 : \frac{b}{x} :: sy - cx : \frac{b(y - bcy)}{x} = Cb = d : bcy +$
 $bx = by$; i. e. $\frac{x}{y} = \frac{bs}{bc + d} = .496875$ the natural Tangent of the Angle $CAD = 26^\circ 25' 18''$ fore, from hence is found $CD = 107.5838$, $AC = 118.6587$, and $BC = 106.3425$ the Length of each Walk requir'd.

Mr. Rob. Robinson, Mr. John Williams, Mr. Sharp, Mr. Todd, Mr. G. Reed, Mr. Flitton, Mr. Stanton, Mr. Taylor of Letwell, Mr. Wade, Mr. Garrard, Mr. Dion Williams, Mr. Dennis, Mr. William Jesson, Mr. Smith, Mr. William Kingston, Mr. Chapple, Mr. Rob. Williams, Mr. Waine, Mr. Terrey, Mr. Dyer, Mr. Pearson, Mr. Calvert, Mr. Cross, Mr. Worcester, Mr. Wallhead, Mr. ... and several others, have given very good Solutions to the Question; but as we cannot possibly oblige all, in the room we are confin'd to in the *Diary*, we'll endeavour to do it in the Supplement.

Question 50 answer'd by J. WAINE.

Put s and $c =$ Sine and Cosine of the CBA , x and y of the $LCBD$, Then will $+cx$ be = the Sine of $LABE$, and (per Trig.) Rad. ($=1$) : $x :: 3 (=CB) : 3x = CD$, also $1 : 2 (=AB) :: sy + cx : 2sy + 2cx = AE$, but $AE + CD$ is a Maximum (per Quest.) and therefore its Fluxion after substituting for y , its Value is $3x + 2cx -$



$$\frac{2cx}{\sqrt{1-xx}} = 0 \therefore \frac{2c+3}{2s} = \frac{x}{\sqrt{1-xx}} =$$

$= 2.3094 =$ the Tang. of $66^\circ 35' 10''$, from whence CD found $= 2.7529$, and $AE = 1.6059$.

The same answer'd by Mr. THO. WORCESTER.

Here is given $AB = 2 = d$, $BC = 3 = b$, and the $\angle ABC = 60^\circ$, whose Sine and Cosine call s and c ; also put $x =$ Sine of the $LCBD$, Then (per Trig.) as $R (=1) : b :: x : bx = CD$, and (by a Theorem in the *Gent. Diary* for 1741) $\frac{s^2 - s^2x}{\sqrt{1-xx}} + cx$

$\perp c$ = Side of the $\triangle ABE$ $\therefore 1 : d :: s_2 - s^2 x^2 \left| \frac{1}{2} + cx : dx - \frac{d^2 s - d^2 s x}{2} \right| \frac{1}{2} = AE$ which (by the Question) added to CD

must be a Maximum $\therefore bx + dx - \frac{2d^2 s^2 x x \times \frac{1}{2}}{d^2 s - d^2 s^2 x^2 \left| \frac{1}{2} \right|} = 0$,

$b + dc$ put n , then $x = \frac{n^2}{d^2 s^2 + n^2} \left| \frac{1}{2} \right|$ solved $x = 66$

from hence $AE + CD = 4,3588$. $\mathcal{Q}$ E. I.

The same answer'd by Mr. JAMES TERREY.

Having drawn the given Triangle ABC , draw CF parallel to AE and equal to the Side AE , join the Points FB . and at right Angles thereto draw ED , and parallel to ED draw CG , Now it is evident that in whatever Position the $\triangle ABC$ be placed the Line BF will be $= AE + CD$; for CG being parallel to ED , it is plain that GB will always be $= DE$ and $FG = AE$ and 'tis plain (by Inspection) that $AE + CD = BF$, is a Maximum, when the Line EB falls perpendicular upon the Line ED , at the angular Point B .

The $\angle s$ AEC and BCF are $= 180^\circ$ by Construction: $\therefore \angle BCF = 120^\circ$, Then (per Trig.) $3 : 2 :: 3 - 2 :: \text{Tang. of half the unknown Angles} = 30^\circ$: Tang. of half their Difference $= 6^\circ 35' 12''$, and $6^\circ 35' 12'' + 30^\circ = 36^\circ 35' 12'' = \angle CFB = \angle ABE$, which subtracted from 90° leaves $53^\circ 24' 48'' = \angle CBD$ $\therefore$ the $\angle CBD = 66^\circ 35' 12''$. Hence is found $AE = 1,60584$ and $CD = 2,75305$ $W. W. D.$

In much the same manner did Mr. Wallhead solve the Question; it was also ingeniously solved by Mr. Rob Robinson, Mr. J. Eadler, Mr. P. Sharp, Mr. John Robinson, Mr. John Todd, Mr. R. Flitton, Mr. Tho. Wade, Mr. John Taylor, Mr. Tho. Garret, Mr. John Hollingworth, Mr. Tho. Peat, Ens. Rationalis, Mr. Geo. Ingham, Mr. Tho. Cooper, Mr. H. Honnor, Mr. Ch. Smith, Mr. Tho. Simpson, Mr. William Kingston, Mr. Geo. Stapleton, Mr. Sam. Bamfield, Philotechnus, Mr. John Ash, Mr. Rich. Woodcock, Mr. John Williams, the late ingenious Mr. Wm. Whitcomb, Mr. Cha. Dyer, Mr. Edward Cross of Wotwaring in York-shire, and a great many others; but as 'tis impossible to insert the tenth Part of what we receive, we hope our ingenious Contributors will generously excuse us, so long as we make our Endeavour to insert the best, and at the same time to oblige as many of them as we possibly can.

The Paradox answered by Mr. WILLIAM ALDRIDGE.
 If the Soldiers when drawn up in five equal Rows,
 A regular *Pentagon* justly compose:
 Then the Officer's Station exact in the Middle,
 Compleats the Solution without any Quibble.

The same answered by Mr. WILLIAM JERSON.

An Officer plac'd on a * *Pentagon's* Centre,
 And one hundred Men on its Sides, I will venture
 To say that each Line will have twenty one Men,
 Tho' the five do contain but just ten times ten:
 Equidistant from each Line's the Officer's view,
 Which compleats a Solution without more ado.

The same answered by Mr. JAMES MAYO, jun.

When I your Paradox at first beheld,
 Whilst reading it, I was with Wonder fill'd;
 To think five Lines, each one and twenty Men,
 Could be compos'd, of only ten times ten;
 And th' Captain equidistant from each Row,
 Why sure thought I, it never can be so:
 After that, a *Pentagon* I made,
 Which sure must be the Form of th' Men I said?
 The Officer, just in the Midst must be,
 That's not right, who can may tell for me.

In the same manner was this answered by Mr. Rob. Robinson,
 Mr. Tho. Grimes, Mr. Tho. Dodd, Mr. Rob. Fitcher, and several
 others.

* A regular *Pentagon*.

Answers to the ÆNIGMA's in the last Years DIARY. •

- | | |
|--------------------------|------------------|
| I. A SPADE. | V. THE LETTER A. |
| II. A SEWING NEEDLE. | VI. A TOP. |
| III. A DREAM. | VII. A CHIMNEY. |
| IV. AN ÆNIGMA OR RIDDLE. | VIII. A PLOUGH. |

SAM. BAMFIELD of Honiton in answering the Ænigma's
 addresses Mr WALLHEAD, thus:

SINCE you whence Cloe's Charms were given do ask,
 Pray hear my Tale (cause she declines the Task.)

Know then, dear Friend, I live A Country Life,
 Free from tumultuous Noise, and City Strife;
 Where verdant Fields rejoice in Luscious Eye,
 And Silver Cresset Streams run murm'ring by;
 Where joyous Birds find welcome in each Morn,
 And Trees and Walks the rural Scene adorn.
 There, on one fatal Day (dear *Wallhead*) I,
 Being at PLOUGH, saw this fair *Nymph* pass by;
 The TOP of all Perfection here below!
 Who pierc'd, like POINTED STEEL, my Bosom through;
 Where dumb I stood — with Extacy possest,
 Like *Paris* at the sight of *Helen's* Breast;
 As drop'd his Cup, so did my rustic SPADE,
 And I her Loyal Captive soon was made.
 And now my Prayers, each Day ascend on high,
 Constant as Smoke, from CHIMNEYS mount the Sky.
 And ev'ry Night my DREAMS present the Maid,
 Who has the Youth to *Cupid's* Bonds betray'd.
 Yet what avails *Chimeras* — I've been bold,
 Address'd this *Fair* — and am'rous Tales have told;
 But fruitless yet — tho' ev'ry Method fought
 Nay Gold and precious Jewels her I've brought,
 ÆNIGMA's sent — yet all are set at nought.
 Doubtless she knows her *Charms* — their Pow'r — their Sway
 Knows if she will, whole *Kingdoms* must obey:
 Nay if her Features did not thus controul,
 Her beauteous Frame of Mind! must charm each Soul.
 Would you, my Friend, to *Deven* strait repair,
 And curiously survey this matchless *Fair*;
 As *Sheba's* Queen of *Solomon* hath said,
 You'd own, her *Glor*, I've not half display'd.

Solution { Sure bounteous Heaven must frame this *Fair* —
 Great — [completes]

{ Which deck'd with human Art, she thus appears

All the Ænigmas answer'd by Mr. WILL. JEPSON.

A SPADE, a NEEDLE, and a DREAM,
 Is *Chapple's* — *Hulse's* — *Randle's* — Theme;
 And *Wallhead's* somewhat near the middle,
 Appears to me much like a RIDDLE:
 Next Mr. *Bamfield* does display,
 His Theme upon the Letter A;

And Master *Hall* with Savage Blows,
Lashes his TOP to soft Repose, 6
Pity the Fair — (I can't help weeping)
Should condescend to CHIMNEY sweeping. 7
Dear Sirs, adieu — excuse me now —
Tis only time to add, God speed the PLOW. 8

All the *Ænigma's* answer'd *ex Tempore* by Mr. R. HULSE.

First *Chapple's* SPADE the *Diary* does adorn, 1
A SEWING NEEDLE follows next in Form; 2
But how comes *Randle* to set forth a DREAM? 3
Which has been mention'd by a juster Name;
A Child, if ask'd, may tell the Letter A, 5
The Youth delighteth with his TOP to play; 6
And when old Time our RIDDLES bring to light, 4
A PLOW and CHIMNEY will the rest solve right. 8, 7

Mr. WILL. WALLHEAD (in the following Lines ascrib'd to
Hodge the Plowman) answers all the *Ænigma's*.

The NEEDLE will the North deny, and I the PLOUGH and
SPADE, 2, 8, 1
DREAMS will no more imperiously, a sleeping Breast invade; 3, 5
Follows on CHIMNEY TOPS will sing in Winter as in May, 7, 6
Hodge e'er I can Answers bring, to solve each *ÆNIGMA* 4

Mr. WILL. CHAPPLE answers them thus.

Endeavouring to find out the Theme of each RIDDLE, 4
Discover'd a CHIMNEY, a DREAM, and a NEEDLE; 7, 3, 2
TOP, Letter A, a SPADE and a PLOW, 6, 5, 1, 8
And this, Sirs, is all I shall say of them now.

In the same manner they were answered by Mr. Rob. Pitches,
John Williams, Mr. Whitacar, Philopœticus, Captain Enfile,
Will. Mobbs, Mr. John Hollingworth, and others; see the Ca-
logue at the end of the Book.

A Paradox by Mr. SAM. HAMMOND.

Ask <i>Kate</i> her Spouse accosted thus,	Next Sunday (dearest Life)
Man and's Son must dine with us;	With each his lawful Wife.
Mother and her Daughter dear,	With each her loving Spouse,
Must partake of our good Cheer;	And merrily carouse.
Man and's Sister, both their Mates,	With each a Son and Daughter,
Spouses too, must dine at <i>Kate's</i> ;	But mark who follow after,
	C 3 Another

Another Woman and her Brother,
 With each a Father and a Mother,
 Two Cousin Germans and (besides,
 With both their Mates, whate'er betides,
 The 'fore said Cousins will bring each,
 (A better way than Nose in Breech)
 Two Second Cousins more appear,
 With all their Mates and each a dear
 O wondrous! easy *John* reply'd,
 If I for all this Troop provide.
 They're all but four, from Incest free;
 If you expound not this to me,
John's lost — in pity Sirs for once,
 He vows, if now you'll save his Sconce,
 And both their Spousettes,
 Present themselves to view.
 Their Mates) two second Cousins
 We'll Bumpers drink by each
 A Son and Daughter, and
 Their Spousettes hand in hand
 And two third Cousins Last
 Old Mammy and a Diddy.
 I shall undo my self,
 Quoth *Kate* thou greedy Elf,
 All born legitimate;
 I'll crack your addle Pat.
 The Paradox expires;
 He'll vex his Wife no more.

*New MATHEMATICAL QUESTIONS to be answered
 the next Years Diary.*

(1) Quest. 51. by Mr. JOHN ROBINSON.

AN Exciseman has met with a Cask in his Round,
 A Spheroidical Frustrum: these Dimensions he found.
 A Diagonal took Sixty Inches most nice,
 The greatest Diameter's Fifty likewise;
 Two Hundred and Twenty Ale Gallons 'twill hold.
 What Distance the Heads are, you're thence to unfold.

(2) Quest. 52. by Mr. JOHN TODD of *Durham*.

In the right angled Triangle ABC there is given the
 Hypotenuse AC = 100 and the Diameter of its inscrib'd Circle
 from whence is required the least Angle that can possibly be
 formed, by two right Lines drawn from the Extremities
 the Hypotenuse to the Periphery of the said given Circle.

(3) Quest. 53. by PHILOTECHNUS.

Given the two stationary Distances
 AB = 60 and BC = 80 Miles, making a right Angle at B; and suppose a Mes-
 senger sets out from A in order to tra-
 vel from thence to C, in the shortest
 time possible; but through the Uneven-
 ness of the Road, and other Impedi-
 ments, he can travel no more than 3
 Miles per Hour, until he arrives at the Point D, somewhere



the strait Line BC, and then can travel 5 Miles per Hour. *Quere* the Time of his performing the whole Journey and the Distance AD, which he travels before he arrives in the Line BC.

(4) Quest. 54. by Mr. WILL. JEPSON of *Lincoln*.

A Triangular Meadow I have to divide,
By three right Lines drawn * from the midst of each Side;
Which Lines at a Pond in the Mead intersect,
Then Lengths § is below, from whence I expect
In Diary next Year, you'll to me be so kind,
As the Sides and Contents † of this Meadow to find.

(5) Quest. 55 by Mr. JOHN ASH.

There is a Piece of Land bounded by three equal and similar Curve Lines, whose Convexities are all turn'd towards one another, the length of each Line is given = 50,7786 Chains, and the Equation expressing the Nature of each
$$= y' - \frac{9}{642} x^3 = 0,$$
 from whence is required the Content of the said Piece of Land.

(6) Quest. 56. Mr. WILL. KINGSTON.

At a certain Place in North Latitude, on a Day soon after the Vernal Equinox, the Sun's Altitude at four o'Clock in the Afternoon was found to be $23^{\circ} 23' 40''$; and the same Evening was observed to set 16 Minutes and a half past 6, from whence the Latitude of the Place and Day of Observation are required by a simple Equation.

(7) Quest. 57 By Mr. PAUL SHARP.

Upon the 11th of *June* 1744 at a certain Place I observed that the Sun's Altitude, when due east, was $14^{\circ} 46'$ more than it was at Six o'Clock the same Morning, whence both the said Altitudes, and Latitude of the Place are required, by a simple Equation.

(8) Quest. 58. By Mr. RICH. GIBBONS of *Totness*.

There's a plain rectangled Triangular Field
Which one Acre and half, exactly doth yield
An inscribed Square, hath likewise been found
And ten Sixteenths of an Acre of Ground

* Perpendicular to the Sides. § 15, 18 and 21 Chains. † Required the Content of the whole Meadow, and of each part separately.

from hence by a simple Equation produce
The Base, Cathetus and Hypothenufe.

(9) Quest. 59. By HURLOTHRUMBO junior.

Given the Rectangle of two Sides of a plain Triangle
16800, and its Perimeter=560. *Quere* its Area was
Maximum.

(10) Quest. 60. By MR. ROB. ROBINSON.

On th' liquid Main, where stormy Tempests roar,
With Instruments, I did Sol's Height explore;
At Six o'Clock, and when he did appear,
In's Journey towards South, due East to bear;
And found his Altitude eight Degrees more,
Than that which I with care observ'd before.
His Azimuth elev'n Degrees at Six,
To which you must twice fifty Seconds fix.
By this you may the Latitude explain,
And thence the Day * of Observation gain.

* Spring Quarter, 1744.

*We once more return Thanks to our kind Contributors, hoping
the Continuance of their Favours; still assuring them, that we
always avoid the least Degree of Partiality, and make it our
endeavour to do to each all the Justice possible; but may at
same time desire them to send up their Contributions according to
Time limited; Post paid, or they will not be inserted.*

New ÆNIGMAS, to be answered next Year

(1) Ænigma 28. By MR. WILL. CHAPPLE.

IN Infancy a pleasing Form I wear,
And like unsporting Innocence appear;
Till taught to speak, and go on Errands well,
And with good Grace a well-forg'd Lie to tell;
Then my untainted Face my Master blots,
Perhaps with somewhat more than Beauty Spots,
Nor can my soft and tender Frame withstand,
The awkward Rubs and Scratches of his Hand;
For notwithstanding all Abuse, I'm still,
A faithful Slave, obedient to his Will:

A certain Member (which I must conceal,
 As being here improper to reveal.)
 Exerts his Pow'r, and with his usual Art,
 Continuates my yet unblemish'd Part.
 Yet I acquire new Honour by this Stain,
 My Freedom, and another Name obtain:
 For to an Officer deliver'd o'er.
 By his Authority he makes all sure;
 And freely gives me a Certificate,
 To inform his Brethren of my alter'd State.
 But should I swell beyond a certain Size,
 And if he my unusual Bulk espies;
 Denial will be vain, I can't get free,
 Till he has had his customary Fee.
 And now, Post haste, I ramble up and down,
 And fetch and carry News from Town to Town;
 But like a Beggar strolling far from Home,
 Am forc'd to shew my Pass where'er I come.
 Like other Vagrants, I your Fortunes tell,
 And let you know your absent Friends are well;
 Inform *Calinda* of approaching Joys,
 Or shew her that which all her Mirth destroys:
 But my Predictions are not always right,
 For I have not the Gift of second Sight.
 Believ'd or disbeliev'd, whate'er my Fate is,
 Th' Advice I give, comes for the most part *gratis*

(2) Enigma 29. By Mr. RICH. WHITEHOUSE.

To the Ingenious I appeal,
 My mystic Nature to reveal;
 I now appear, in humble Strains,
 To please and cultivate your Brains.
 Sometimes transparent I am found,
 And sometimes flat, but mostly round;
 My Parents they are *Christian's* Food,
 But I am neither Flesh nor Blood;
 Nay what's more strange I'll now reveal,
 For I have some Brethren made of Steel.
 My Maker first takes off my Skin,
 And then my Bowels from within;
 Thus by some Artist I am made,
 And then I'm us'd for foreign Trade.

And

And for my Liquids to dispose,
 I have a Nick made through my Nose;
 And tho' I'm destitute of Sense,
 I shew the brightest Eloquence;
 The Students of Philosophy,
 Of Algebra and Geometry,
 They all assisted are by me:
 The Ladies too, do me approve,
 And use me most when they're in Love.
 And when Coquets set me a Task,
 I'm then employ'd to make a Mask.
 But I'll no longer you detain,
 I've said enough to solve my Name.

(3) Ænigma 30. By Mr. SAM. BAMFIELD.

From immaterial Essence form'd was I,
 Permitted by th' ETERNAL POWER (on high;
 Soon after his creative Skill shone forth,
 And spoke to Being, beauteous *Heaven* and *Earth*;
 He then compacted, the substantial Plan,
 Of proud, imperious, discontented Man;
 Who my Producer was; and thence, from he,
 Transmitted to his vast Posterity:
 But of such Nature few can me explore,
 Yet I'm Companion both to Rich and Poor.
 Tho' of obscure, chaotic Form compos'd,
 A *virtuous* *Wight*, oft truly me disclos'd;
 By which he trod on Honours Eminence,
 And rul'd a Kingdom, (tho' a vast Expence)
 Better than his *tenacious* *Prince* could sway,
 And wisely did th' extensive Pow'r display.

The ancient Sages did on me rely
 Tho' now despis'd, exploded, and thrown by:
 But with sufficient Grounds the Learned say,
 Because bright Reason's Dictates don't obey.
 Wild and imperfect are my Works 'tis true,
 And oft compos'd of Falshood, Nonsense too:
 Yet oft with panic Fears beheld am I,
 As often Pleasure in me Men defery.
 " Enough is said — So Artists now reveal,
 " What I have here endeavour'd to conceal,

" Empo

Employ your Skill — Sensibly name the Thing,
That from Insensibility doth spring.

(4) Enigma 31. By SAM. HAMMOND.

My Pow'r's great, some I delight, some cheer,
Rejoicing some, some toss 'twixt Hope and Fear;
Some are unhappy by not knowing me,
Some if they knew me not, would happy be;
Without me some would see no happy Days;
Debasing some, and some to Honour raise.
Some my Acquaintance boast, who ne'er have known me,
And some who have, in Pubick do disown me:
Some dumb, some eloquent I make, some sad,
Some gay, some Fools, some witty and some mad:
Some fear to die because of me, some die,
Rather than undergo my Tyranny:
Thou 'tis not me, but my Creator, who,
The Tyrant is, and cause of all their Woe.
I conquer more than did great *Alexander*,
Nassau Eugene, or *Anna's* brave Commander.
But all by gentle Means, as Bribes, Persuasion,
Wit, fair Appearances, Dissimulation.
I level those of high and low Degree,
And all Opinions do unite in me.
The Ladies warmest Friend, 'tis I reveal,
Their hidden Graces, and their Faults conceal.
I improve their Beauty, and in little Space,
Can make a Beauty, of a homely Face,
I set at Variance set the nearest Friends,
I make Villains virtuous seem, to gain their Ends;
And Tongues by Nature rougher than a File,
Can in an Instant make as smooth as Oil.
Am often the Romantic Author's Theme,
But lest I yet shou'd too mysterious seem)
A fishy Monster oft assumes my Name,
And thus disguis'd, brings Multitudes to Shame;
Altho' to me, he's full as opposite,
As gloomy Darknefs is to radiant Light.

(5) Enigma 32. By Mr. JAMES HALL of Witney.

Attend, ye *Sirs*, these trifling Lines express,
The World's great Champion in a mystic Dress.

Let Merit claim Renown; let those commend,
 Who've often prov'd me as a special Friend.
 Not like my Brethren — They're a num'rous Crew,
 Fifty at least, and upwards; (strangely true)
 Weak, Beauish, upstart Slaves, who vainly proud,
 Display their painted Pride, to charm the Crowd.
 Not so am I — my far superior Sway,
 Claims justly more Perogative than they.
 I'm not like them to one fix'd Shape confin'd,
 But *Proteus* like, appear in every kind.
 You've seen me, when the regal Stamp I bear,
 The poor Man's Labour and the Rustick's Care.
 Another while fond Love throughout me reigns,
 And *Cupid's* Trophy on my Scutcheon shines.
 Now *India* vaunts her richest, choicest Ware,
 Now Tyrants force, and knotted Vengeance scare.
 Train'd up in Wars, and many a midnight Fight,
 See! whole Troops fall, and languish at my Sight.
 For such's my Pow'r, so absolute's my Sway,
 Kings bow down to me, scepter'd Slaves obey.
 Nay e'en Sir *John* himself that haughty brave,
 (Altho' in truth no better than a Knave)
 Whose puissant Sword victorious overthrew,
 And foil'd " whole Legions at the Fights of — "
 How oft (oh Shame!) how oft has he been crost!
 Nor could his Force, his Fame, or ancient Boast
 Procure his Freedom, or a safe Retreat,
 But fell an easy Captive at my Feet.

Ye riddling Wits, that like such toying Fame,
 Explore the Truth and tell the World my Name.

(6) Ænigma 33. By Mr. RALPH HULSE.

Whilst I triumphant happy stood,
 With Pomp and Grandeur in the Wood;
 Whilst I sail'd in the Ocean wide,
 And nothing ill did me betide;
 Not half so blest'd, since then to bear,
 A Nymph so lovely soft and fair.

But that wherein I glory most,
 And so great Cause have of to boast;
 When I was fashioned compleat,
 I soon regain'd a peaceful Seat:

don't difown Supremacy,
 tho' owe my Being to a Tree,
 or life to Fish; if I am so free.
 Say, if I were of temper'd Steel,
 am not the worse tho' keener feel.
 As for my Station it is low,
 smooth, taper, blunt from Top to Toe;
 and if at length you'd know my Reach,
 in Inches ten at the least stretch.
 Near *Celia's* Bosom snug I lie,
 in solemn Pomp and Majesty;
 yet free from Harm and Treachery.
 Happy, thrice blest'd, would *Strepson* be,
 could he exchange Estates with me;
 What else remains — am much in Fame,
 With rural Girls who know my Name;
 So *Sages* if you'll it declare,
 I'll do as much for you next Year.

(7) Ænigma 34. By Mr. WILLIAM MOBES.

Come rouse your Wits, my Name explore,
 for I ne'er troubled you before;
 You know me well; Sirs, your Intense,
 does always give me Existence;
 tho' I my Parentage can trace,
 beyond the *Babylonish* Race;
 Now then I was in great request,
 deem'd by all, by all carest'd;
 But Fate since then hath been severe,
 and now I scarcely dare appear;
 For rapid Men my Life invade,
 With cruel Force and destin'd Blade;
 To cut me down they are so fond,
 and throw me prostrate on the Ground:
 They will not long let me remain,
 upon my native fertile Plain.
 Fertile Plain, and flowing Tide,
 Where passing Streams do gently glide;
 With luxuriant fruitful Soil,
 and such a *British* Isle,
 as you'll say, where is this Soil,
 and what's the Latitude o'th' Isle;

To that I can make no Reply,
 Nor answer by Astronomy;
 For in each Clime this Soil is found,
 Where Men appear to till the Ground.
 Enough is said, now tell to me,
 My native Soil and what I be,

(8) Ænigma 35. By Mr. R. M.

From hard Met'lic Ore, purg'd often
 By many a fiery Trial, till refin'd
 And fit for Uses many: By Artists nice,
 My blue, or sanguine Body is produc'd,
 Tho' next, yet crooked and deform'd I am,
 Without Eyes, Ears, or Mouth, yet have a Beard,
 And one sharp Tooth, by which my Prey I seize,
 (Who fall sole Victims to my Master's Will)
 But this I ne'er perform, till fast I'm bound,
 In Silken Cordage oft my arming call'd,
 Or neatly dress'd with Gold and Feathers fine,
 In all gay Hues, that ornament the Fair:
 Then oft my Pleasure take I th' limpid Stream,
 Or soar thro' liquid Air with rapid Speed.
 Sometimes a gentle Female me directs,
 And in return, a dainty Feast I give,
 If Fortune prove indulgent to her Wish.
 Ye kind Ænigmatists, my Name reveal.

(9) Ænigma 36. By Mr. JOHN CALVERT.

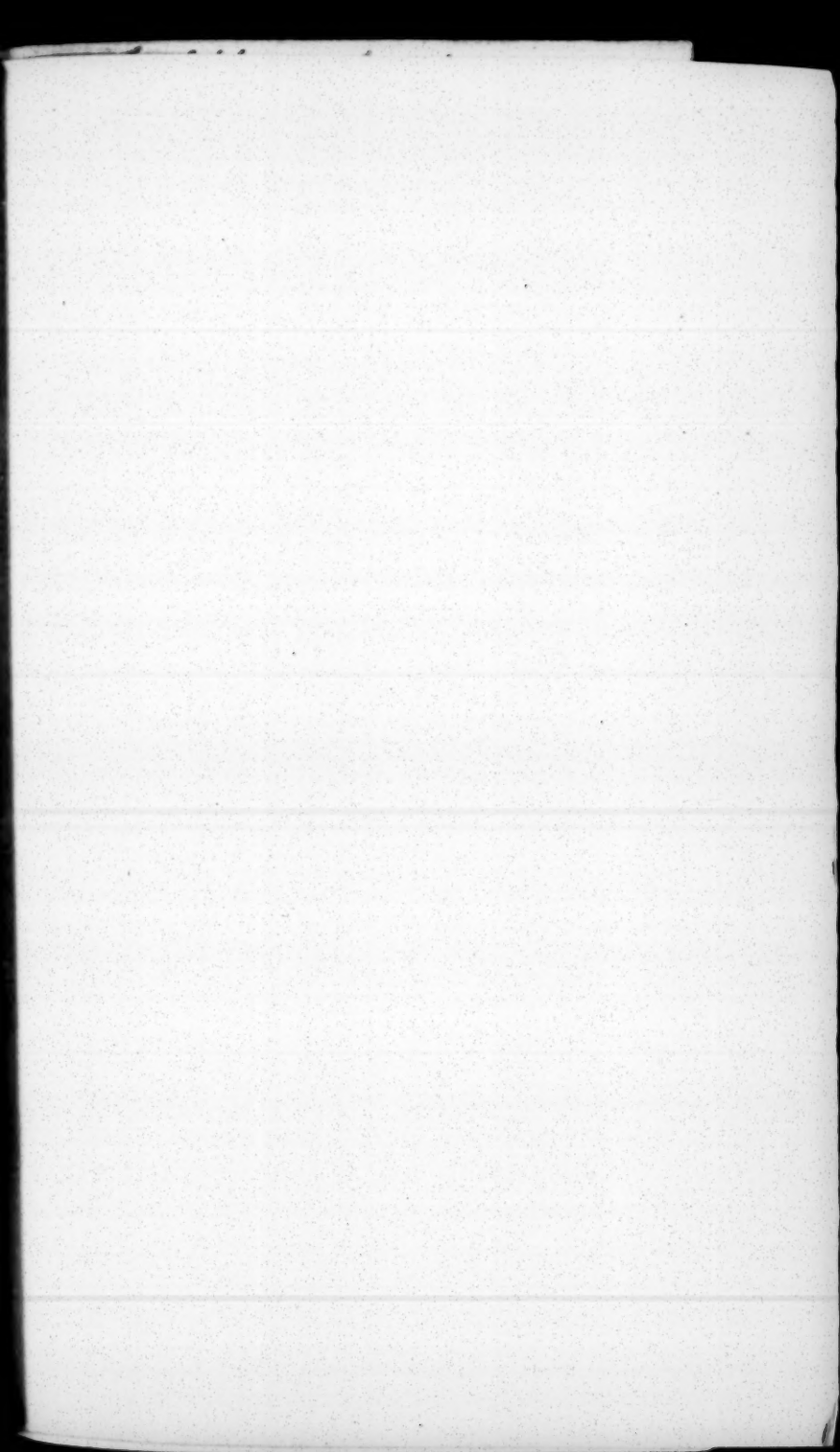
I am truly design'd, for the Use of Mankind,
 By force from my Parents was torn;
 From Embryo I claim, to myself a new Name,
 As an Infant I naked was born:
 Yet as spruce as an Heir, at some Times I appear,
 Oft in Silks and in Silver I'm clad;
 Tho' I chiefly am dress'd, in a deep mourning Vest,
 As a Party who mourns for the Dead:
 Be I'm dress'd up compleat, the same instantly my Fate,
 To be ship'd without further delay;
 With Speed then once more, I'm dress'd up as before,
 E'er I can yield Profit or Pay.

Weapons of Steel I'm obnoxious to feel,
That stab me with Wounds and rough Blows;
Which is to fulfil, a meer Tyrant's Will,
Who on me no Favour bestows.
By Times I'm employ'd, till my Fame be destroy'd,
Hereafter I'm useleſs and lame;
Beaſt of my Race, ſtrait ſupplieth my Place,
Which for th' future muſt ſuffer the ſame.

Alphabetical Catalogue of CONTRIBUTORS to this
Diary, ſhewing by the Numerical Letters i, ii, iii,
&c. which Queſt. and by 1, 2, 3, 4, &c. what
Enigma's each answered.

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Barall Æ. *Mr. Trebor Drabrah* all Æ. prop. 1. *Academicus* all
and Parad. *Mr. William Aldridge* x. and Parad. *Anoxamander*
Qu. but v, and vii, 1, 2, 4, 5, 8. and Parad. *Mr. Samuel Bamfield*,
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Cha. Botrell the Eclipſes. *Mr. John Beet* all Qu. all Æ. and
Mr. John Badder all Qu. but vii. all Æ. Par. and Eclipſes. *Miſs*
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